

MAKING THINGS TOGETHER: THE ISLAND & THE VALLEY, SELVES & SOFTWARE, HERE & THERE

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MAKING THINGS TOGETHER: THE ISLAND & THE VALLEY, SELVES &
SOFTWARE, HERE & THERE

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This dissertation explores the work of startup tech entrepreneurs in Jamaica, and how, through intertwined strategies, they craft software and self using design and development methods understood as emerging from Silicon Valley's successes. These approaches have become attractive globally as routes for securing economically successful products and businesses. They also shape action and identity, producing new ways of being in the world and drawing adherents into an ever renewing process of imagining, building, and becoming.

While the entanglement of self and labour is central to the neoliberal entrepreneurial ethos, tech entrepreneurship and startups offer their own forms and entanglements that are informed by the materials, opportunities, and often utopian ideologies of technology development. In Jamaica, these are further shaped by, and give new expression to, existing technical practices and industrial histories, traditions of self-making, and the subjectivities of race, class, and gender that are unfolding within the island's transnationally-informed culture. I attend to the superpositions that result, paying particular attention to how questions of what and who has value are expressed and shaped within and across the island's borders.

In Jamaica, as across the globe, there are now hubs of entrepreneurial activity modelled after images the Valley projects. I follow the moves of entrepreneurs as they search for collaboration, funding, and legitimisation through these programs, moving in transnational circuits that cut through Silicon Valley. While Jamaica is known in these

circles, it is not understood as a site from which technology can be developed. I show how entrepreneurs work to cast themselves and the nation as capable, and how the island's understood culture operates as both blessing and burden within this effort. Despite the emancipatory rhetoric invested in today's tech entrepreneurialism, the largely black Jamaican entrepreneurs are faced with prejudices at home and abroad. I demonstrate how decisions about who counts as a valid tech entrepreneur and which methods they can employ are arbitrated along lines of colour and class.

Finally, I argue against a reading of their work as a tropicalisation of things designed in more temperate climes. Jamaica has been interwoven into global capitalism since its discovery, and its resulting heterogeneity and ability to incorporate disparate and often incoherent forms destabilises notions of the indigenous or the authentic. Rather than drawing a line that unproblematically connects The Valley's ideas and The Island's actions — California as metropole and Jamaica as the colony — I argue that a shift in perspective might allow us to see their work as inherently and always modern, globally informed and future-focused in a way that the Valley has always claimed to be.

BIOGRAPHICAL SKETCH

Kaiton Williams received a B.Sc. in Electrical & Computer Engineering from Morgan State University in 2002. In 2003, he joined Microsoft, working in various roles across systems engineering and architecture in their online services division in Silicon Valley. In 2009, he enrolled at Cornell University while continuing engineering practice, and with this doctoral dissertation he completes his Ph.D. in Information Science. He intends to continue work in human-computer interaction and a range of related interdisciplinary topics through approaches at the intersection of engineering and ethnography.

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CHAPTER 1

INTRODUCTION

I was pulled over by the police two days before I was to leave Jamaica and end my active, in-country, period of fieldwork in 2014. I had been driving over the speed limit for most of the year so I could only note this last-minute capture with a wry amusement; I had traced hundreds of miles all over The Island¹ by then. That night I was on the return leg of a frequent circuit I made between the rural town where I grew up, and Kingston, the capital city where much of the island's startup development was centred.

The two officers who pulled me over seemed cast in a tropical re-staging of a reliable Hollywood buddy comedy: one short, the other tall. They reminded me of Touchie and Scrapings, the pair of policemen from *Squaddy*, a local series that had made a landmark simultaneous debut online and on TV just a few weeks before I arrived for fieldwork.

The taller officer, Touchie, approached the car and asked me to wind down all the windows. Other questions followed. Are you travelling alone? Are you headed to a party? Would you please step out the car? Could I see your license?

There was a break in the questions as he looked over my California ID. How long have you been in the country? I hedged, unsure of the rule that limited how long I could drive without a Jamaican license. I left Jamaica when I was eighteen — the minimum driving age — and I had never bothered to apply for one during any of the brief windows I'd spent on the island since. Should I count from my official arrival for fieldwork in December 2013? I went with August, my most recent crossing.

¹I use the "The Island" (vs "the island") and "The Valley" to connote spaces associated with, but not necessarily bound by, the geographic limits of Jamaica or the San Francisco Bay Area. The Island includes much of Jamaica's circulating diaspora. The Valley offers an imprecise but useful slip of neoliberal market positioning, libertarian philosophy, and techno-utopianism that informs many of the sites and models of tech entrepreneurship

What was I doing in Jamaica? Working for the World Bank, I explained. This had the benefit of being both true and more believable than “following tech entrepreneurs around.” By then we were midway to the police cruiser, and as I returned to my car to fetch insurance & registration information, he called back to me: “Yuh ah Jamaican?”

“Aye. Yea man.”

He had been wondering how I had picked up the local patois so quickly. “No man”, I confirmed again, perhaps leaning a bit too heavily into my accent. “I’m Jamaican.” “I live abroad. I’m back for work.”

Walking back with my paperwork, I explained that I had been on the University of the West Indies (UWI) campus, teaching aspiring entrepreneurs how to design and build smartphone apps. This drew their interest. I leaned casually on the cruiser’s bonnet, simultaneously answering their questions and imagining the easy impossibility of this scene in just forty-eight hours and three thousand miles.

What apps do I build? None, I was just teaching. “Wah dem seh? Those who can’t do, teach?” Touchie tossed this gleefully while leaning against the trunk to write up my ticket. I laughed along and in the ease of the moment asked if they had smartphones. Scrapings produced his, explaining that he was an avid user of WhatsApp, the popular mobile messaging service.

In an effort to explain what I was helping entrepreneurs to do, I mentioned that the company had been bought by Facebook for \$19B USD in February. How is it,

Touchie then asked — and I could not answer — that these companies were worth all this money?

1.1 New Possibilities

What follows is my way of wrestling with that question. I wanted to understand how products like this have become so valuable, and how budding tech entrepreneurs, like those in the mobile development course I had been teaching, might participate in, or be excluded from, this wealth. For entrepreneurs from California to Jamaica, startups like WhatsApp and its new parent company² are everyday avatars for the economic and social potential of entrepreneurial tech development. This is the kind of success Jamaican tech entrepreneurs³ believe that they can replicate from the island. This document traces the circuits through which they travel to prove their worth on a global stage.

It is not difficult to understand why these developers would have such hopeful expectations. WhatsApp was started by only two people on a shoe-string budget. Profiles of its founders, Brian Acton and Jan Koum, highlight their difficulty finding acceptance in their careers, including rejections from job interviews at Facebook and Twitter. Accounts of Koum in particular, focus on his redemptive rags-to-riches arc⁴ as an immigrant who had first escaped poverty then dropped out of college before finding success.

²Mark Zuckerberg, its founder, is a symbol for wealth and a popular exemplar of the tech entrepreneur as asocial, brilliant, utilitarian and utopian. Outside of his business acumen, he has also become a role model for many entrepreneurs and engineers in The Valley and beyond (Haber, 2016).

³I use developer and entrepreneur interchangeably to reflect the slippage often employed by my informants and the fulsome ambiguity inherent in both. While “tech-preneur” and the similarly hyphenated “start-up” are used by the local media and government officials to describe this union of technology development and “lean” approaches to business interests, this did not reflect usage within the local tech community. The ungainliness of the term surely contributed to their avoidance but more significantly it signalled a distinction between The Valley and The Island that they would prefer to avoid.

⁴See, for example, Olson (2014)

The product had started simply and grown in tandem with new technical breakthroughs. When launched in 2009, WhatsApp's features and development were closely tied to the evolving capabilities of the new smartphone platform. Inspired by Apple's announcement of the App Store for the iPhone in 2008, its founders initially intended that the app would be used to display a single status description ("what's up") but when further technical changes to Apple's iOS platform allowed app developers to send push notifications directly to users later that year, they saw an opportunity to create an instant messaging component (Olson, 2014; Koum, 2017). WhatsApp quickly spread beyond Apple's ecosystem. In the following year it became available for the Android and BlackBerry smartphone platforms along with Symbian-based feature-phones. Shortly after its acquisition in 2014, the service had grown to 500 million monthly active users (MAUs⁵) and by 2015, its user base topped 700 million MAUs, and it was responsible for sending 30 billion messages a day which was estimated to be one and a half times the global traffic of SMS messages (Evans, 2015). A year later, they announced that service had arrived at the vaunted 1 billion user mark⁶.

And while developed in Silicon Valley, it had built its audience largely outside the country and across the Global South. This transnational significance (Manjoo, 2016; O'Neill et al., 2016) made it valuable for an expanding Facebook, while rendering it largely invisible to a US-focused punditry. The purchase celebrated immigrant technologists as valuable players and highlighted the growing importance of markets beyond

⁵Measures of user activity, taken monthly or daily, have become a crucial element in measuring the health and trajectory of services, particularly as founders seek funding and higher valuations for their initiatives. These metrics inform hopes among Jamaican entrepreneurs for a universally objective assignment of "value" wherein it would be these numbers that matter, not the racial or geographical identities of the product's developers. On the other hand, when building products *for* The Island, concerns of inadequate scale hamper their attempts to seek investment. These metrics, and a data-centred ethos writ large, promise a form of identity intermediation — a digital salve for offline bias — but they also entrench ideas of what a successful product should be in terms of *scale*.

⁶One billion. (2016, February 1). Retrieved April 24, 2017, from <https://blog.whatsapp.com/616/One-billion>

the US but it also further cemented The Valley as the arbiter and locus of innovation and tech entrepreneurial success.

Budding Jamaican entrepreneurs could articulate their own attempts and personal trajectories through these now familiar stories of startups like WhatsApp, Instagram, and the hundreds of others launched, acquired, or IPOed over the last few years. These products emerged from small teams led by young founders who trafficked many of the same sites they did, and used similar toolkits and programming platforms. That the features of these products could be copied over a weekend was a frequent refrain on Valley-built but internationally populated forums such as Hacker News, Reddit, or StackExchange. This trope, while underestimating the complexity of these products, hinted at the increasing availability and sophistication of guides, software building blocks and hosting infrastructure, and pointed at the possibility of billion dollar unicorns⁷ emerging from anywhere on the globe.

Messaging and social media are just two of these “new economy” sectors in which global tech entrepreneurs are seeking success. Other booming fields include gaming, retail, streaming media, advertising and analytics, and various sharing or gig economy approaches led by companies such as Airbnb (valued at over \$30B USD), and Uber (over \$62B USD). Over the last decade, it is the tech industry that has become known for producing the rich through entrepreneurial bravado. Today’s companies have largely delivered on the hopes dashed after the dot-com era’s collapse at the beginning of the millennium. Its giants, Facebook, Apple, Alphabet (Google), Microsoft, and Amazon — the “big five” — dominate the list of the largest companies in the world (as measured by market capitalisation). They are heaven and earth: in possession of stratospheric valuations while also playing intimate, pervasive roles in almost every aspect of everyday life.

⁷See Mchawrab (2016) for an expanded explanation of the unicorn startup

1.1.1 A global pipeline

Across the globe, the tech industry is regarded as the critical engine of economic growth. Its designers and developers are the new attractive creative class. Politicians heap adulation on tech companies and seek their association, vying to attract companies and create their own versions of Silicon Valley⁸. “Software is eating the world”, to follow Marc Andreessen (2011), a venture capitalist with the firm Andreessen Horowitz, who himself had made millions after co-founding Netscape in 1994.

The browser and the open web continue to be catalysts for entrepreneurial development but today’s economy has been accelerated and given new forms through the arrival and widespread dispersal of the smartphone and the new possibilities of mobile computing. The mobile internet and the mobile experience once conveyed a lesser version of what was available for the desktop but ten years after the iPhone’s 2007 release, mobiles have dramatically risen in capabilities and fallen in cost, driving an international market of customers for software & services. There are now just over 2.5 billion of these devices in use and analysts predict that it will take but a few years for smartphones to double their reach (Evans, 2016)

These new devices have been complemented with significant improvements in the penetration and capacity of telecommunications networks. In many cases, the mobile is rarely used as a telephone at all, and is instead a surface through which its users can access a wide range of products and networked services. This combination of device, network, and software as service is not limited to the developed world. Without the complex legacy interactions with previous technologies and expectations, there is rapid innovation in their use across the Global South (GSM Association, 2017).

⁸See: Silicon Alley, Silicon Wadi, Silicon Savannah, Chilecon Valley and more (Haines, 2015)

This has created new opportunities for entrepreneurial developers while reshaping the materiality of software and the geographies of its production. Where software was once shrink-wrapped to be shipped, the new mobile and networked model encourages the deployment of apps that access spatially remote services hosted in the “cloud” and are available to customers everywhere in the world and constantly updated (Lison, 2015). Mutually supporting infrastructures for the development of these products have been improving rapidly as well. Today’s products weave together a wide range of open source programming libraries and APIs, and rely on Cloud Computing and Infrastructure as a Service platforms such as Amazon Web Services, Google App Engine, and Microsoft Azure. This has made it easier and cheaper to build applications and then scale them up in complexity and across the globe

This has been paired with a growth in “soft” infrastructure. Doctrines and guides for managing the development of a product and for organising and growing a company around it, are now easily found on the web: on YouTube videos, in blog posts and forums, and across GitHub repositories and Twitter feeds. These are woven together in a global ecosystem of co-working spaces, hubs, incubators and accelerators run by Valley alumni and corporate investors, governments and International Development agencies. The support of this ecosystem has emerged as an industry onto itself. Experts circulated among these sites, disseminating insights from books such as *The Lean Startup* (2011), *The Startup Owner’s Manual* (2012), and *Zero to One* (2014), and coaching participants in methodologies such as Design Thinking, Growth Hacking, and Continuous Improvement. Its backers jointly create a structure that mediates and interprets best practices for tech entrepreneurship, acting as brokers, incubators, and gatekeepers.

infoDEV'S MAP OF INNOVATION CENTERS

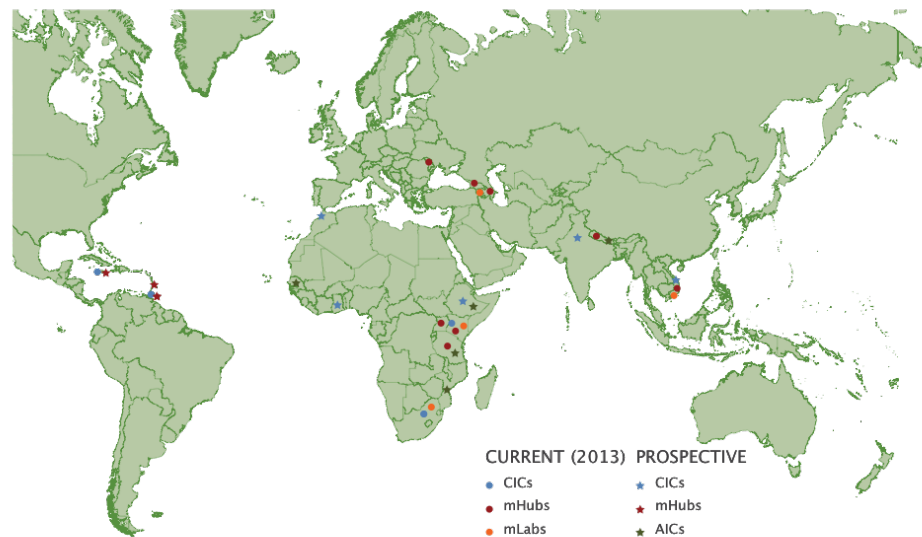


Figure 1.1: Map of infoDev's worldwide tech entrepreneurship initiatives¹⁰

1.2 An EPIC Digital Future

This has all been a boon for Jamaican developers. While the nation might be at the margin of the global economy, these resources provide the potential for composing products with international reach and parity at a fraction of what it would have cost just a few years before. And in 2014, this anticipation was on evidence as these “moguls in the making⁹” slalomed through a local ecosystem of initiatives put in place by the Jamaican government, the World Bank Group, and a host of other NGOs and international corporations.

⁹*Mogul in the Making* is a series of features in a local newspaper, The Jamaica Observer, on young entrepreneurs and their routes to success.

¹⁰Image obtained from infoDev (2014a)

The Bank¹¹ has been a driving force in this attempt to use technology entrepreneurship to upskill and transform local citizens. Much of this has centred around the Entrepreneurship Program for Innovation in the Caribbean (EPIC), a seven-year, \$20M (CAD) program launched across fourteen Caribbean countries in 2011, with Jamaica as the hub. EPIC itself is only a part of a larger worldwide network (fig. 1.1) run by infoDev, a multi-donor programme within The Bank that supports “growth-oriented entrepreneurs in emerging economies”¹². The program provides funding and training in three areas: mobile innovation, climate technology, and women’s entrepreneurship.

EPIC, the national government and, several several corporate social responsibility initiatives have together put in place a set of initiatives intended to link Jamaica’s economy with Silicon Valley and with that accomplished, to link it with technology development as the fastest growing sector in the global economy (The World Bank, 2014a). These initiatives were pitched to budding talent from across the island: an assortment of hackathons, workshops, pitching competitions such as PitchIT Caribbean and Digital Jam; longer term training systems such as the Caribbean Mobile Innovation Programme (CMIP) focused on teaching mobile development skills; and Start-Up Jamaica, the national technology accelerator/incubator that would function as an acceleration program and finishing school for teams throughout the region. Modelled after growing global programs for tech startup incubation and acceleration¹³, this system was intended to help entrepreneurs move their idea in a pipeline from “mind to market” (The World Bank, 2014b).

¹¹As with The Valley and The Island, I frequently use “The Bank” to refer to a range of programs and efforts spearheaded or facilitated by The World Bank Group

¹²Entrepreneurship Program for Innovation in the Caribbean. Retrieved July 7, 2017, from <http://www.infodev.org/EPIC>

¹³See Haines (2015) for an overview of many of these programs



Figure 1.2: Welcome banner at the Digital Jam event, from my personal photo collection

1.2.1 Stunning Beginners, Game Changers, and Pioneers of the Caribbean

Held in the opening days of March 2014, a few months after my arrival, Digital Jam 3.0 was the banner event in this EPIC pipeline, and the entry point for many of the young entrepreneurs I met that year. The conference was two events knit together. One track covered new opportunities in the gig economy with panels and workshops teaching participants about crowd-work, and online freelancing; the other track catered to

tech entrepreneurship. While the first day focused on speeches and panel discussions with topics such as *“Reinventing the Caribbean with Technology, under age 35”*, *“Show me the cash...”*, *“Building a Thriving Ecosystem for Tech Entrepreneurship”*, the second day was the highlight: a pitching competition for mobile apps.

The pitching contest is the terminus of a four month journey. The organisers received 180 regional submissions across these categories, which were then shortlisted to 55 and those shortlisted candidates were paired with mentors and technical support to develop their ideas. Eighteen will be pitching their prototypes today¹⁴.

The action begins just after lunch. The event is being held at the newly built University of the West Indies Regional Headquarters, and assembling in the hallway outside the main room under the stern eyes of portraits of past university chancellors in academic drapery is a decidedly younger, and much larger, audience than yesterday's. Those panels were sparsely attended but today, as the doors open, the seats in the main room rapidly fill up.

The room's geometry places the small stage, the audience, and the small judge's table in close congress. The pitchers face five judges. Bedy Yang, the sole woman, is described in the official program as *“responsible for Brazil and Latin America at 500Startups, a Silicon Valley micro-VC fund & accelerator”*¹⁵. Yousef Hamidaddin, I am informed, is the CEO of Oasis500, an accelerator and seed fund based in Amman,

¹⁴It turns out that teams only find out this last fact on the morning of the event. This seems a cynical attempt to ensure high attendance

¹⁵Though descriptively most expert in the issues that might confront Caribbean entrepreneurs, she has, at 16 words, the second shortest description of all the 36 experts in the event's program. She's joined at the brevity podium by two other women. The longest descriptions are assigned to men, and government officials specifically. Minister Robinson's profile runs 141 words long and Dr. Phillips, the Minister of Finance, has a 139 word profile. Their profiles are also 2 of only 4 profiles that mention University degrees, and the only ones that mention a Secondary (High) School. Minister Robinson's profile also tells us what primary school he attended, for those wondering how he spent ages 5 through 10.

Jordan.¹⁶ Three white American men round out the rest of the panel. JJ Geewax¹⁷ is described as “working on Google’s Cloud Platform and Developer APIs in New York City, Seattle, and San Francisco”. His entrepreneurial credentials are established based on the sale and integration of his company into Google’s advertising network. The program describes Peter Corbett as “the founder and CEO of iStrategyLabs”, a company that “develops solutions to clients’ challenges and brings them to life in the online and offline world.”¹⁸ At the end of the table is Jeff Burton, the Executive Director of Skydeck Berkeley, the “only cross-discipline startup accelerator” at University of California, Berkeley.

As we all settle into our seats, Bunji Garlin’s soca hit *We Ready For The Road* pounds through the room’s sound system. The event’s organisers have obtained “ZJ” Sparks, a DJ from the popular Zip FM, who begins a musical program that runs throughout the three hour session. Scanning the few developers I can make out huddled near the front, they all seem nervous. I am too. So is the audience in the room and following via the live stream.¹⁹

🐦@WattsSheThinxkin: It’s time to control our technological experience.

“The #next9million is about us.” Our story. People of colour.²⁰

¹⁶The program also informs me that “Strategist, Economist, & Entrepreneur are strong descriptions” for him, “yet the most admired by is his capacity for Vision” [sic]. Hamidaddin “loves entrepreneurship, and keeps pushing for more innovation, more measured risk taking, and for the economics to work all around”.

¹⁷It’s the weekend and while there are folks in the audience in suit and tie, most everyone is casually attired. Even so, yesterday, JJ stuck out in a UPenn Athletics t-shirt, jeans, and thong slippers. Today he has switched to more formal long-sleeved button down shirt, though untucked. On both days he wears a pair of Google Glass which has generated whispers and tweets, some of which feature the tweeter proudly bespectacled, having borrowed them for the shot

¹⁸The program lists thirty of his previous clients, the recitation of which I’ll skip, though its difficult to find a coherent strategy for an overview. A few: Disney, Microsoft, Pinkberry, The US Army, PBS, NASDAQ, and Coca-Cola. The list provides little insight into what he does for these firms, or why he is here.

¹⁹I am weaving in tweets from the simultaneous live stream that united people in the room with the those beyond it. This is how I experienced the event, attuned to both conversations at once. I’ve only used tweets here explicitly tagged with #DigitalJam3 as a marker of intended participation in a public conversation. For brevity, I’ve removed the hash tag in quoted tweets

²⁰Retrieved from <https://twitter.com/WattsSheThinkin/status/440184886507212800>

Teams in the opening category, Stunning Beginners, must use the Windows Phone platform²¹ and its entry level app templating system. The first app, *Healthy Pon Di Run*, is pitched by two black men in ill-fitting black suits²²: one is a chef, and the other is the software developer. As if to underscore the tropical setting, they have colour coordinated: one wears a matching raspberry coloured tie and shirt combination, while his partner is toned in golden pineapple. Their pitch is rooted in their personal ties to lives felled by nutritional diseases such as diabetes, obesity, and hypertension. The app has a database of healthy products, along with recipes and nutritional facts for meals that can be prepared in under thirty minutes. In the future, they pledge to use geolocation and restaurant partnerships to allow meal preparation for those who cannot cope on their own. As the first team on stage, they are extremely nervous. We are nervous for them. They make many restarts, trying to reorient themselves from a memorised script while we cheer them on.

🐦@teh_bug: “And it begins...first pitch Nervous buck...”²³

🐦@RandyMcLarenRM: #pitching think pitching is easy? Think again²⁴

A timer just off to stage right counts down their five minute session in foot high digits. They must now face questions from the judges. The questions focus on the pro-

²¹This is corporate and development synergy. The incentives for Microsoft are clear, given that they had roughly 2% of the market share in mobile, mostly in Latin America (IDC, 2017). What value this alignment offers local app developers is unclear, given that the only people I saw with Windows Phones in Jamaica were the developers who won them in these Microsoft sponsored competitions.

²²All the presenters today are black — dark-skinned — though notably none of the judges and few of the experts in the program are. The teams are also relatively young, mostly in their mid twenties. The outfits for presenters are largely dark casual clothing that can, from a glance, be read as business casual. Many of the men manage the gap between formal and casual by wearing a jacket over a t-shirt and jeans. This combination, while popular on the stage, is not standard office wear.

²³Retrieved from https://twitter.com/teh_bug/status/440189543225241600

²⁴Retrieved from <https://twitter.com/RandyMcLarenRM/status/440189773811290112>

prototype's user interface, how they will obtain content and what their revenue model will be. The pair appear to be unprepared for these challenges but do their best.

They leave the stage as ZJ Sparks spins up *Ain't No Giving In* by Chronixx. This is part of program of musical interludes that speak poetically to the challenges of the competition while keeping the "vibes" right for the proceedings. The music selections add yet another narrative stream to the already polyvocal conversation, online and off.

🐦@deikamorrison #digitaljam3 must be coolest app competition. @Sparkiebaby
ah play some bad tunes! Big up @digitaljam3 @WBCaribbean for integrating culture²⁵

Other teams make their way up to the stage, accompanied by music. The ZJ plays *Winner* by Konshens as two young men come forward and launch into a polished pitch for *Route 876*, an app that provides public transportation options "for the tourist and the country man coming to town" and imagines "an era where no pedestrian would be lost". Jamaica's public transport sector, while rich in entrepreneurial ad-hoc diversity, is at best chaotic and the pitch is met with thunderous applause. The crowd is loving their use of the local vernacular and dub poetry²⁶.

²⁵Retrieved from <https://twitter.com/deikamorrison/status/440191534403960832>

²⁶A panel on the first day also featured an opening dub poem presentation by an entrepreneur accompanied by a traditional drummer in a Kente cloth vest. The drummer sits temporarily amid the panel next to Jamie Len, a panelist from Microsoft, whose expression betrays a rhythmic perturbation. Next to Jamie is JJ and his expression is stoic. The crowd bounces.

Peter Corbett, a judge today but working from the crowd yesterday, uploaded a short video of this to Instagram, with the caption "Tech conferences in Jamaica include Emcees who tear it up on the mic to intro panels". The video attracts 21 likes and a handful of the comments I have come to expect, cringingly, from the tech network Corbett left behind in the US to visit Digital Jam. Working in the pseudo-patois affected by many trying to sound Jamaican, they leave behind comments such as "*Me freeze me source codin'; GitHub me uploadin'*" and "*Now that's unique. Right by da beeach.*" We are not by the beach.

🐦@MrDreWalker · Route876 pitching in poetry! @digitaljam3 !!! Vibes up
up up!²⁷

The team fields, with aplomb, questions about financial forecasts and potential market size. They tell the judges that there are now finally enough smartphones on the island. Looking around, I see that the crowd is posturally and sonically disgruntled with the panel's flat responses to what they saw as a great pitch.

🐦@WattsSheThinkin · Are the nuts and bolts of business universal? Can
there be harm in a foreign panel judging local embryonic ideas #digitaljam3
Your thoughts?²⁸

Similarly, in the Game Changers category, two reed-thin young men pitching *Drive Roun JA*, narrate the harrowing and hair raising experience of driving around the island. In the game, drivers attempt to survive Jamaica's tenuous and tortuous road network while being presented with Jamaican scenes and billboard ads. The game plays on jokes about the "pot-hole positioning system", the grand winner of 2012's Digital Jam 2.0, which used phone sensors to detect and plot potholes in the country's road network (Scott, 2012). The crowd loves it but the panel of judges less so. They say that unlike *Flappy Bird*,²⁹ a game that was currently an international sensation, the game is not universal. Grumbles from the audience: what does universal mean?

²⁷Retrieved from <https://twitter.com/MrDreWalker/status/440196558781689856>

²⁸Retrieved from <https://twitter.com/WattsSheThinkin/status/440196037223800832>

²⁹The game and its shabby retro-chic bricolage design quickly became a recurring motif throughout my year. The 30 minute opening speech on the first day — "Innovation and Technology shaping how we work" — is delivered by Julian Robinson, the Minister of State in the Science, Technology, Energy and Mining Ministry (M-STEM). The minister outlines today's opportunities in the global economy and calls on the assembled audience and those following on the event's live video stream to "move from being net consumers of tech to producers". He and other speakers from the podium that day invoke the game, which has been in the global news for earning its Vietnamese developer \$50K USD per day income with minimal investment, as an example of what could be. "The next flappy bird", he suggests, could come out of this community and an event like this one.

Two men and a woman pitch *Pan Chicken*³⁰ *Dash*, a side-scroller game that features a scrawny, circumspect chicken on the run against a background reminiscent of an early Mario Brothers series now restaged in the Sonoran Desert. The judges like it but think it will be challenging to distribute; again, the crowd signals their disappointment. As the judges go through their feedback, it occurs to me that had Flappy Bird been pitched in this setting, they would have similarly shot down the premise, despite now relying on it a generative example.

The Pioneers of the Caribbean category is marked by products such as *Kerb*, pitched as the “AirBNB of parking spot rental”, which helps Kingston residents rent their apartment parking spots to commuters, and *GasTopUp* (entrance scored to Buju Banton’s *Buju Moving*), which helps its users discover routes to the cheapest gas station, or those with a range of additional services. “*Stupid Money*” by Wayne Marshall introduces *CrimeBot*, the app that wins the competition and the \$10,000 USD grand prize. The app allows users to locate and report crimes and attempts to provide the probability of a crime happening in your area. The idea has a huge impact on the audience. “Let’s face it”, they say, “everybody in Jamaica knows a criminal”.³¹

🐦@corvedacosta · Crime Bot gets it for me - may not be the money maker app but it solves a huge prob.³²

🐦@GodivaGolding · And then stuff got real #CrimeBot serious presentation. Real issues// Proactive fighting³³

³⁰Pan Chicken refers to a local street food smoked and grilled in metal drums (“pans”) bisected into clamshell barbecues.

³¹“Minister, do you know any criminals?”, jokes the afternoon’s emcee, pointing to one of the government officials in attendance.

³²Retrieved from <https://twitter.com/corvedacosta/status/440231502929215488>

³³Retrieved from <https://twitter.com/GodivaGolding/status/440230772981911552>

1.2.2 Finding a balance between rhythms

Sitting just a few rows from the stage, Digital Jam reflected features of the global startup scene that I found prevalent in descriptions across the developing world (Haines, 2015; Friederici, 2017). We must first endure proclamations on the future from local technocrats and politicians. Imported panelists and speakers then promote newly developing best practices for channelling entrepreneurial energy. Corporate sponsors seek marketshare in an expanding digital frontier. Expert judges are on hand from Silicon Valley institutions and other global hubs to assess the pitches of fledgling teams.

Though sponsored by governments and development agencies, the event serves largely as a forum for delivering ostensibly Silicon Valley values and technologies. The mobile tech moment has drawn together The Valley and The Bank, as joint promoters of a market-centred economic order. As 3.0 neared, Fabio Pittaluga, the Bank staffer spearheading the effort, set those stakes dramatically:

“through this effort, Jamaica and other Caribbean countries will join numerous business networks that *stretch out from Silicon Valley to the rest of the world to connect the region’s youth with the technology giants and other employers*” ...This is a worldwide revolution in the making” (The World Bank, 2014a, emphasis mine).

As around the globe, these events are the symbolic emblems of a reorientation to work and production along the rhythms of The Valley and its notions of innovation, disruption, and social change. The event is a conduit, connecting Island and Valley projects for the stewardship of properly entrepreneurial and capable citizens.

Despite the “3.0” versioning, this was the second Digital Jam event. 2.0. held in 2012, marked this kickoff of a concerted program to facilitate new investments, incubate start-ups, establish “microwork” aggregator hubs, and digitalise government (The World Bank, 2012). The event’s “2.0” was a reference to the epochal shift to Web 2.0³⁴ and to a new version of the Caribbean’s relationship to the global economy that it represented. On its launch, Françoise Clottes, World Bank Director for the Caribbean, summarised these new expectations:

The Digital Jam 2.0 might become a milestone in Jamaica’s efforts to generate new and innovative solutions to youth unemployment...[W]e believe it has great potential for replication across the world....setting the stage to address broader agendas, such as *the modernization and digitalization of Jamaica*, a move towards mobile services, banking and commerce, and reaping the benefits from online employment opportunities (The World Bank, 2012, emphasis mine).

On day one, this energy for transformation had been spread across a series of panels, workshops, and speeches. One day two, it was concentrated towards the pitching stage, holding it open as a portal. Those who stepped up to it were at once in a corner of a room on the second floor of a building just across from the UWI campus in Kingston, and in another zone policed by the expectations of the judges. On stage, hopeful entrepreneurs and watchful judges assessed local problems through their suitability for ideas and models which were uprooted from The Valley, put into global circulation,

³⁴Described as a shift in technology and attitudes towards a larger focus on user-generated content and participation, matching business models, and development approaches that centred interactivity (G. Blank and Reisdorf, 2012; O’Reilly, 2009). Stretching the scope further, Birdsall (2007) places it as part of a larger social movement that overlapped new developments in communication networks with larger commitments to human rights

and then landed on the stage, out the room, then the building, and into the rest of the country.

Its GPS coordinates notwithstanding, this orientation towards The Valley made the stage a ‘white space’ (E. Anderson, 2015) in a black country. It made the stage a site for what Anderson describes as “the dance”, an embodied negotiation in which black people in white spaces must work to minimise or overcome their perceived deficit of credibility through dress, speech, and here, prototypes that must also be dressed just right, and say the right things.

It was positioned as a critical stage along the development of the tech entrepreneur. The event’s facilitators were keen to position it not just as a contest but as a program of progressive education in the values and forms of today’s global tech production. The lead up to the stage featured extensive mentoring sessions where participants learned not just how to design apps, but how to make and present idea, software, and self together.

One of the assigned mentors, as covered in a blog post, positioned the training not just as providing technological instruction but as the beginning of a multi-generational program of “values and core beliefs” that when “absorbed and understood”, would allow youth to unleash their talents (E. Lewis, 2014). Teams rehearse and then execute an ontological narration, presenting themselves as a marriage of technical skills (“the CTO”) and business acumen (“the CEO”). Judges prompt them in the best display of this entrepreneurial bravado. Never say “I” during a pitch, one of judges warns a contestant — it makes the company seem small.

At events like these, pitching and prototyping function as design practices of *précis* and bodily praxis. Teams work to sell an idea and to develop legitimacy by provid-

ing a summary of what the product, team, and market is and will be — performing an anticipatory identity into reality. On the stage, through the pitch and the prototype, product and personal identities are presented and crafted in conjunction with an audience, shaping, through speech, code, body, powerpoint slides and more, a future world and a present team. More than just a projection of the possible tomorrow, the performances on the stage and in the lead up to it, reflected how the Caribbean youth who passed through the event must inhabit that future in the present (Adams, Murphy, and Clarke, 2009).

The stage, and the pitches and prototypes presented there, mediated past and future. Underscoring Turner's (2016) conceptualisation of the prototype, they made futures visible by advancing technical possibilities and convening new constituencies around them. Apps like Crimebot are not just a technical prototypes but an experiment in renewed community relations, requiring more than a functional assessment. They are explorations of new approaches to life. They look backward in time as well, rejoining and reassembling centuries old debates about national identity and citizenship, and deeply Caribbean projects to find freedom and economic independence. In this process, the making of new things becomes visible as the reassembly of old things — hopes and historical fragments — amidst the accommodation of new ideas.

Standing comfortably on stages like this requires balance between present and future, island and valley. Broadly, the pitches played on two rhythms: one for the judges, the other for the often pulsating crowd. Often that equilibrium could not be found, revealing split commitments, expectations, and sensibilities. In the final assessment however it is The Valley's aesthetics and models, as proxied by the judges, that prevails.

The musical program and the reactions to it underscored this clash between orientations and affective energies. The largely dancehall soundtrack, the chirping tweets,

and the undulating “vibes” hinted at the existence of a second space, just outside the awareness and legislative authority of the imported judges. This second space offered the possibility a different dimension of analysis and a “different order of knowledge” (Strathern, 1992, p. 73). This analysis might not have produced different winners but it may have produced different questions by listening in another way, in sync with local beats, cognisant of all the rhythms that entrepreneurs must flow within when they step off that stage.

Turner argues that prototypes go beyond marketing tool or engineering experiment and embody a stance towards the world where we constantly remake ourselves, testing our new iterations against the world, and, finding ourselves wanting, seek to improve. Making a better product, in this sense, models the process of making a better self and in turn a better world. It is this process of developing software and self, undertaken in a landscape shaped by the rhythms of Jamaica and California, that I trace in the following pages.

CHAPTER 2

MAPPING THINGS OUT

My 2014 summer in Jamaica was my first since 1998. That year, our football team, *The Reggae Boyz*, made their first, and only, appearance at the World Cup, held then in France. In 2014, the World Cup is on again, though this time in Brazil. Enthusiasm is high, even without Jamaica's appearance. Stuck in traffic in two separate cities on two separate days, I watch two equally entrepreneurial men weave between cars selling national flags.

There is more than football in the air. In a heated week, Digicel and LIME, the telecoms carriers with a comfortable duopoly across most of the Caribbean, blocked the use of Viber, Skype and many other Voice over IP (VOIP) apps on their networks, igniting a fractious debate on network neutrality. Nightly newscasts tracked the westward progress of Chikungunya, the crippling Dengue-like mosquito-borne virus that was making its way across the Caribbean. Similarly portentous updates track preparations for the country's upcoming IMF tests.

Christine Lagarde, the fund's Managing Director, is here for talks on the country's future. In the small jerk shop in my home town where I get chicken once a week, I see her on the small TV above the bar. She's onscreen again at Cafe Blue, the upscale coffee shop in Kingston where I occasionally meet folks for interviews, planning sessions, and a respite of Wi-Fi and air-conditioning.

Ms. Lagarde is here as part of the country's fifth review of its economic performance under the group's Extended Fund Facility (EFF), the latest in a series of IMF adjustments and restrictions that have been in effect since the 1980s. This summer, the island has the ignominious distinction of working under the world's most austere national budget,

outpacing Greece (International Monetary Fund, 2014). This was not the global leadership for which Jamaicans have prayed. Unlike our ephemeral appearance at the World Cup's group stages in 1998, Jamaica has been a near constant presence on the list of most heavily indebted countries in the world since it began its intensive engagement with the IMF.

This was the backdrop against which Ms Lagarde delivered her speech at the UWI campus. Acknowledging the country's difficulties and the large student audience, she outlined a future for the country and its youth, charted through the new possibilities of a global, interconnected economy.

I realize that the Caribbean has gone through a tough time over the past few years. You know this here in Jamaica. You have lived it. But this generation holds the keys to the future. When your immense talents are put in the service of your countries, success is surely guaranteed. Indeed, I can feel a powerful wave of change. I believe that the region has set sail on a voyage toward greater prosperity. And Jamaica is raising its sails with confidence. Clearly, then, the [global economic] crisis was a major wake up call. Caribbean leaders understand the need for change—not just to free themselves from the grip of crisis, but to adapt to the challenge of the global new normal. Think about it. The global economy is more interconnected than ever before. The engines of growth are shifting away from traditional markets in North America and Europe to the far-flung shores of Asia. The cozy comfort of trade preferences is long gone. The specter of climate change hovers over the small island states.

As Derek Walcott put it, “the future happens, no matter how much we scream” (Lagarde, 2014).

Preparing for this spectre will require retraining citizens: smart investments in education and training in order to “link the skills people have to the skills the economy needs” (Lagarde, 2014). Jamaican youth can meet new potentials in this coming global new normal, but they must do so in the face of impending vulnerabilities from climate change. She underlines this, lyrically: “[a]s climate change continues its relentless march, the Caribbean is on the front line—a region of low-lying islands surrounded by increasingly angry seas”

Angry seas double poetically. Patterns in the Global North have resulted in a wide range of environmental and economic shocks that now disproportionately affect countries like Jamaica who possess fewer resources with which to cope. The Walcott quote she deploys — “the future happens, no matter how much we scream” — is from his stage adaptation of *The Odyssey* for Caribbean themes and, whether she intended it or not, the metaphor is apt. Chart a new course and try to stay above rising water.

2.1 Charting a new course

My central interest is in how this charge to young Jamaicans — black Jamaicans in particular — to be innovative is being taken up through the globally circulating forms of technological praxis and discourse associated with the “tech startup”. How do the Jamaicans at the helm of these projects work to realise visions of self, product, and nation within a discursion on value and values that knits together old aches about black belonging in the New World with new concerns about emerging technological forms? Working on a startup takes this longing and charts it between *The Island*, as a place struggling to find its rhythm, and *The Valley*, as the lodestar of innovation.

I follow their journeys as they make selves and software together in anticipation of a global market. Launching a startup offers its founders new possibilities to be seen and valued in the world — particularly important for those working from a marginal position in the world’s racial, economic, and geographic order. At the same time, it offers a limited set of orientations to the world — primarily as market. As a result, a crush of ambitions and imaginaries are shoehorned into the startup and its supporting ecosystem.

Helpfully, attending to that crush directs our attention to a wide range of materials and claims. These sites in that pipeline “from mind to market” are laboratories for technical, national, and personal development. They are simultaneously platforms for realising national dreams, workshops for the construction of things (code, devices), launching sites for self exploration, and forums for cultural and economic rectification. Following these entrepreneurial journeys allows us to trace the lines along which products and people travel and twist, determining what is innovative and what is valuable.

In the following sections, I provide the orienting themes and waypoints for the rest of my dissertation. In *The startup as vehicle for an unfolding search*, I explain in more detail my specific focus on the startup in terms of its relationships with scale and growth and how that situates it within a matrix of people and things. Second, in *Why study startups in Jamaica?* I explain why the Caribbean is well suited for studying technology development in this mode, showing how the region’s early history provided an early experimental ground for the coupling of technology and scale, the effects of which have provided a heterogenous landscape well suited to studying global formations like the startup.

In *Audience and Fellow travellers*, I explain what conversations this text sits within and who this document’s audience is. In *The Jamaican economy: Where are we going?*, I provide

context to Ms. Lagarde’s speech, the island’s relationship with the IMF and the World Bank, and the economic background that informs the support of the tech entrepreneurship ecosystem. In *Tracking Innovation to and through the island*, I provide a more complex and less deterministic accounting of the transfer of technology to and from The Island, situating the technical, cultural, and economic forces that shape entrepreneurs’ journeys. Finally, I conclude with an overview and a preview of the chapters to come.

2.2 The startup as vehicle for an unfolding search

What is a startup? While small tech firms have existed all over the world for several decades, I am most interested in the forms that have emerged out of the San Francisco Bay Area and been shaped by a relatively small group of institutions and people over the last decade. Here, rather than attempt to define it in terms of size, or type of product made for sale, these leaders of this latter day startup movement have defined it in terms of its potential.

S. G. Blank (2010) defines the startup as an operation built to search for a “repeatable and scalable business model”. Paul Graham, the founder of Y Combinator, an influential Silicon Valley accelerator that has launched startups such as Reddit, Dropbox, and AirBnB, similarly defines the essence of a startup in terms of its potential for growth. This foundation in inquiry and growth makes the startup more verb than noun, and more line than point. It draws our attention to the unfolding, the searching, and the transformational at the core of technology design and use.

How does a startup secure that growth? What is it that they make? While all startups launch with some idea in mind, the products finally offered emerge from this search rather than are fixed a priori. Often the initial idea is only a base — a minimally viable

product (MVP) — that allows for experimentation and continuous iteration towards what a final product might be. In his frequently cited guide to startups¹, Andreessen (2015) underscores a crucial element for establishing the growth trajectories that are fundamental to the startup's definition: Product-Market Fit.

While the term's exact definition remains debated, the general consensus is that this fit represents an alignment along the team's abilities, the product's features and pricing, and a large enough market demand to satisfy growth. In search for that fit, startups will pivot — moving to new markets or product categories — doing whatever it takes to secure a thesis for growth. As a result, what a startup works on today is little guarantee of what it might work on tomorrow.

Securing this fit requires skill — a process of attention and response to the balance of team, technology, and market. While not speaking to the challenges of the startup specifically, Ingold (2001) refers to a similar process as sensuous engagement. Suchman (2011), writing about the broader challenges of research and design in the corporate environment, describes a similar process as the practical and material intertextuality needed to assemble heterogeneous materials into a coherent whole.

It might be easier than ever before to build an app and launch a startup but as software eats the world, the world is in turn impressing itself onto software. The number and variety of external dependencies keeps growing as the range of these technologies expands, creating new hybrid product categories, and increasing consumers' expectations. It is how teams manage this babel, more than any specific device, app or service that they produce, that is at the core of my interest in the startup.

¹The guide, part of a larger body of work from his now deleted blog, exists across several web mirrors as a sort of gnostic text for disciples of The Valley's startup culture

I realise that this is a somewhat idealistic, and perhaps even dangerously naïve, view of the startup. I recognise that much of its fundamental orientation to the world as market is problematic, to say the least, as is the scalability at the heart of the tech startup's claims to value, a point I will return to in the closing chapters. However, for now, I want to suggest that this framing of the startup as a vehicle in the search for, and the negotiation of, relationships that produce and rely on growth, provides productive lines for thinking about technology and design. It brings to the fore technology and design choices as a result of cultivated expectations of growth and scale that in turn produce economic value. This framing is particularly relevant in the context of human computer interaction research, and for thinking about how we might go about a more careful and sustainable construction of technology within societies all across the planet.

2.3 Why study startups in Jamaica?

I write of the Caribbean because I am from the Caribbean. It is a place I care deeply about as a technologist and as a Caribbean citizen. As I explain in this section, there are significant, and less subjective, reasons for situating a technoscience study in the region but it is important for me to say this firmly rather than shy away from it. My emotional and intellectual commitment to Jamaica's present and future has helped me produce the kind and quality of work I value. I will turn to questions of care, affective bonds, and the challenges that "native" ethnography poses to HCI and ethnography's epistemology in the chapter *Notes on Construction*.

That said, I understand that, for many, the Caribbean is an unlikely place to situate a study of startups and innovative technological practice. This is a perspective that I worriedly anticipated. My desire to prove the Caribbean worthy of interest in a conver-

sation about technology has shaped this document deeply, in ways I am proud of, and in other ways that I have come to regret.

No one would be surprised to read an account of startups in Northern California. For many, Jamaica conjures up visions of idyllic beaches, olympic sprinters, and bass beats. For a few others, its image is indelibly stained by genocide, plantation slavery, and colonialism. Few think of young men and women hunched over keyboards or engaged in lively debates about API updates, dank memes, and funding rounds.

But the Caribbean's sugar plantations helped birth the scalability project that inheres in modern capitalist societies and our conception of technology (Tsing, 2012). As developed across the Caribbean and Latin America hundreds of years ago, this plantation system expanded across the tropics, thriving on what Tsing (2012) refers to as "nonsoels": "nonsocial elements" divorced from the diverse forms of complexity that are inimical to scale. As Tsing notes, these consisted of cloned sugar cane planting stock, imported slave labour, and conquered and then cleared lands.

These were elements engineered for alienation and then control. On these grounds, the Caribbean became the foundation for the dream of modernity (Mintz, 1986). This dream is the triumph of technology: a world cleansed of the non-scalable in order to produce what Tsing refers to as the "raw material of techne" (Tsing, 2012, p. 513). The New World was capitalism's alpha test for scalability; the first world that technology ate.

Jamaica remains almost entirely populated by peoples imported for those growing needs of sugar production and capitalism. Built on the continuing intersections that arose from those early, often brutal, interactions between colonisers, indigenous peoples, African slaves, and indentured labourers, its resulting society is cosmopolitan with

what Pertierra and Horst (2009) refers to as “the hallmarks of a globalized, (post)modern society”: “transnational flows and diasporic populations, multi-ethnic communities and the hybridization and appropriation of cultural forms”. In this respect, it is the world that has become more like the Caribbean (Karla Slocum and Thomas, 2003).

Critically, Caribbean Studies have then long featured a balance of global and macrostructural analysis with an ethnographic narration of what Karla Slocum and Thomas (2003) refer to as “globalization from below”. This has produced textured accountings of how individuals negotiate avenues through and around global power by mobilising local histories and meanings. As a result, work in Caribbean Studies has emphasised crossing disciplinary boundaries, and mixing concepts and categories in a syncretic philosophy that matches the region’s hybridity.

It is then an ideal place and body of knowledge with which to answer the call by W. Anderson (2002) for accounts of technoscience that reveal and complicate the durable dichotomies that were produced under colonial regimes and continue to underpin colonial practices and hegemonic claims today. Its history and geography places it in what Anderson refers to as the “complex border zone of hybridity and impurity”² (2002, p. 644). It continues to be a productive place from which we can trace how the global manifests in the local (Karla Slocum and Thomas, 2003) while interrogating that division and others. Developed vs underdeveloped, certainly, but critically for this dissertation, also theory versus practice, technology against culture, and design as distinct from criticism. These are dichotomies that I argue must be exploded for HCI to remain relevant and vibrant.

²At the same time, careful attendance to what happens in Jamaica and California reveals that there is no distinct border zone that contains this hybridity, only that perhaps the work of purification is less coherent, complete, or effective here (Latour, 1993).

2.4 Audience and Fellow travellers

I arrived in Jamaica to study the interplay between its mobile developers telecommunications carriers in the midst of a startup explosion. In a scene now repeated across the globe, backed by NGOs, government, and transnational corporations, the startup had colonised most of conversation, action, and affective energy around technology development. While I focus primarily on the concerns of startup tech entrepreneurship, specifically in Jamaica, I believe that this document speaks to wider concerns about how technologies & markets are structuring our lives. Startups are no longer some marginal concern and their products are not just for those on the cutting edge. The smartphone, itself now an everyday object, has placed their products into intimate communion with our lives.

This dissertation is then in dialog with conversations taking place across disciplines such as Human Computer Interaction (HCI), Science & Technology Studies (STS), and the Anthropology of Science, Technology & Computing on the cultural, political, and economic processes that mutually inform the design of digital technologies around the globe. It is a direct engagement with these debates, as traced between entrepreneurial practices in Silicon Valley and sites in India (Irani, 2015; Irani et al., 2010), China (Lindtner, Greenspan, and D. Li, 2015; Lindtner, 2014, 2015, 2013; Avle, Lindtner, and Williams, 2017), Ghana (Avle, 2014; Avle and Lindtner, 2016; Avle, Lindtner, and Williams, 2017), to name but a few closely connected with HCI, my particular field of interest.

Across these seemingly discordant global locations are positioned what Irani (2015) refers to as transnational emblems of innovation — hackathons, incubators, co-working spaces and more — that reference and build on common technosocial infrastructures and expectations largely derived from Silicon Valley (Haines, 2015). These en-

entrepreneurial hubs are reminiscent of what Calvino (1974) refers to as continuous cities; while common patterns connect them, each site is animated by its own imaginaries, resulting in forms that are a thought experiment and prose poem about each region's particular anxieties about technology, society, and the future.

Increasingly, the wings of these disciplines that have focused on these transnational flows of innovation & people have come into closer dialogue with the critical, reflexive arms largely focused on design methods and computing ideals primarily in the context of the US and Western Europe. This is a recognition of the global ambit of today's technology giants and the diffuse boundaries that separate Global North and South. This has driven a wide-ranging discourse and academic attention on entrepreneurial citizenship, technology cultures and related subjectivities. It has seen the HCI community specifically, look out into the world and then back in to discuss our own boundaries and conceptions of here and there, and what we legitimate as of concern and contribution to HCI (Taylor, 2011; Avle and Lindtner, 2016; Avle, Lindtner, and Williams, 2017; Irani et al., 2010).

I believe this is an important conversation to continue to have in HCI fora, with the CHI conference at the centre. There is a distinct contribution to be made by a community with a fluency in the creation and materiality of digital technologies. In a world that we, as technologists, help eat with software, we should also be charged with the "material" weight of human computer interaction in the present and in the future and the entangled lives of people and things that results (Hodder, 2012). To do this, HCI must remain alive to these processes through which the design and use of these technologies are becoming central to national policies, geopolitical relations, and the life-worlds of hopeful technology entrepreneurs (Avle, Lindtner, and Williams, 2017).

Attending to the work in these hybrid transnational zones will continue to push us to consider intermingled concerns of companies, citizens, and countries — an intersection at which the startup stands. This can only help make us more compassionate and careful critics and constructors of human-computer interactions. In this vision of design, we admit into focus personal and national hopes, and the struggles of making a living as vital to understanding when and where design is, and what counts as technological or innovative, rather than relegating them to the borders and stylistic preambles of ethnographic accounts.

This will mean interrogating the underlying connections between technology development and neoliberal market philosophy. This is not straightforward. Although I have made The Valley a focal point of this document, it arguably functions as concentrator, not originator of these ideals. But, proxied by a wide variety of agents, The Valley's imprimatur has powerful effects that we must account for.

In the spaces that I and others have reported from, alumni from Silicon Valley technology firms, consultants and development experts from The World Bank or various international NGOs, venture capitalists and more, all play a role in promoting portable, universal, views on technology production and use. Whether armed with an explicit agenda or not, they effectively echo and maintain a hegemony of design methods and orientations to world as market. These readily available and sanctioned templates and exhortations nudge sites toward The Valley's standardisations, which are also those that support the mobility of capital and global economic inequity rather than the regional specificities and local engagements that might best support emergent design practices or careful construction of sustainable local relationships (Avle, Lindtner, and Williams, 2017).

Accordingly, my audience also includes regional policy makers in science and technology, development agency staff, and venture capital funders — specifically social impact investors attempting to support marginalised communities and practices. I have shaped the document’s tone and topics with them in mind. They too are my fellow travellers, and represent critical levers for making the kinds of interventions that I believe are necessary to produce a more equitable sustainable future for global technology development.

2.5 The Jamaican economy: Where are we going?

Ms Lagarde’s speech only hinted at the region’s troubled past and adroitly reframed the fund’s role in churning those rough seas. We are to understand that today’s IMF is democratic — that it has Caribbean members — but little about its decision making processes is revealed. Transitioning from the spectre of the IMF’s past in the country to a more a friendly one, she sets a new direction for the region and its engagement with the fund now that “old paradigms are dead”:

Both the Caribbean and the IMF are very different today from what they were thirty years ago, twenty years ago—or even ten years ago. You have changed and we have changed. We might have started far apart, but—*through the constant motion of change*—we are walking toward one another (Lagarde, 2014, emphasis mine).

But how exactly did we move from far apart to today’s embrace? And where exactly are we walking towards? Her speech positioned it as natural, depoliticised path of progress and change.

³Photograph taken from my father’s 1970s era record collection



Figure 2.1: "We Know Where We Are Going", vinyl album of speeches and music from the 1976 PNP General Assembly³

Jamaica began its engagement with the IMF and neoliberal globalisation policy at the end of the 1970s and in the face of stark choices between West (Capitalism) and East (Communism). In a landslide 51-9 parliamentary seat loss in 1980, the ruling Democratic Socialist People's National Party (PNP) was replaced by the more market-oriented Jamaica Labour Party (JLP), in an election marred by violence and hundreds of murders (Electoral Commission of Jamaica, 2017). The PNP had come into power eight years

earlier on a platform of redress. In the 1950s, through a region-wide industrialisation strategy that relied on foreign firms and expertise, Jamaica began transitioning from a plantation economy to one driven by bauxite mining and became the world's largest exporter, but popular consensus was that the resulting prosperity had not touched the island's lower classes (Levitt, 2005). Once in power, the PNP increased the tariffs for the export of bauxite, nationalised other industries, and used that income to improve worker's rights and wages and other socialist projects. They also joined the non-aligned movement and deepened the island's relationship with Cuba (Weis, 2005).

Michael Manley, the party's leader, would announce that the Jamaican experience demonstrated that "capitalist strategies of political and economic management cannot solve the basic problems of our people" (as quoted in Beckford, 1985), and the first few years of the PNP administration were marked by the country's highest standard of living (Levitt, 2005). However, this would be short-lived. By the time of the party's reelection in 1976, the island's economy was already struggling. The oil price shocks of the early 1970s tripled the cost of imports, and the global recession of the decade engulfed the island as it did much of the then Third World.

The bauxite industries had already receded from their boom, and tourism industries contracted. The government would be forced to borrow money from private markets, driving up its external debt. At the same time, the PNP's policy of non-alignment, coupled with Manley's strong support for Castro during the cold war, created internal and external tensions, particularly with the United States (Stone, 1985; Ambursley, 1981). However, Manley would continue to advocate for economic and political independence from the West (Hillman, 1979). He resented dependency syndrome and instead pushed for Jamaica's participation within the New International Economic Order (NIEO). As

he stakes out in that interview, this was more than economic emancipation, it was the continuation of a project of identity:

The real transformation has to be a psychological and political transformation first. Of that I have no doubt whatsoever! *And we have paid a certain economic price for embarking upon that road of transformation.* But I think that we've made a lot of progress.... A uniquely Jamaican identity is being established (Hillman, 1979, p. 396, emphasis mine).

But with no turn around in sight, the nation began its first borrowing agreement with the IMF in 1978, which required difficult economic adjustments. Bartilow (1997) argues that the IMF agreement was intentionally constructed as a trap for the island, with targets that the government could not realistically reach. When they were not met, the IMF began an austere program of adjustment with demands for adjustments to interest rates, liberalisation, and cuts to social spending & welfare, accompanied by more policy reforms and stricter conditions. By March 1980, the PNP chose to break ties with the IMF, which, given outstanding debts, led to further economic difficulty, including the laying off of thousands of civil service workers (Weis, 2005; Henke, 1999; Helps, 2012).

The JLP's slogan for the 1980 election — 'Deliverance is Near' — spoke to the country's deterioration and promised citizens to finally make money "jingle in yu pockets" (Helps, 2012). Despite the PNP's strides and Manley's pro-black message in a largely black country, economic deterioration had created a political climate that was receptive to the JLP's "free enterprise program". Once in power, the JLP lifted controls on external investments, made commitments for privatization and liberalization, reduced tariffs and trade barriers along with subsidies and social services, and expanded Free Trade

Zones for export processing and the service industry. They also reopened relations with the IMF and World Bank, and by 1984 had signed three Structural Adjustment Loans (SALs) .

Jamaica was now to be an exemplar for the free market democracy principles centred around the US and Ronald Reagan⁴. Through their relationship, the island became aligned with the United States, as the government severed ties with Cuba, which Weis (2005) and McAfee (1991) connect to increases in funding. By 1982, US economic aid had gone from \$38M USD in the last year of the PNP's stewardship to \$208M (Harden, 1985). Reagan himself reflects on this developing relationship in a 1982 speech to the Permanent Council of the Organization of American States:

One early sign is positive. After a decade of falling income and exceptionally high unemployment, Jamaica's new leadership is reducing bureaucracy, dismantling unworkable controls, and attracting new investment. Continued outside assistance will be needed to tide Jamaica over until market forces generate large increases in output and employment — *but Jamaica is making freedom work* (Reagan, 1982, emphasis mine).

Despite this influx of funds and some marked economic progress, by the middle of the decade, Jamaica's trade deficit had tripled, and inflation had skyrocketed (Levitt, 2005). The World Bank, administrator of the IMF loans, would admit that in retrospect much of this was due to poor projections and design. Its Independent Evaluation Group (IEG) concluded that, when making projections for the island's third SAL, the Bank had assumed that bauxite prices would recover, but in 1985 net earnings dropped by almost sixty percent (Weaving, 1990).

⁴Edward Seaga, the newly installed Prime Minister, would be the first foreign head of state that the US president received after taking office just a few months later (Harden, 1985)

What new wealth was created was primarily owned by the local elite or foreign investors and was concentrated in the sectors of tourism, trade, and finance, doubling the ratio of GDP that went to foreign interests (P. Anderson and Witter, 1994). The adjustment processes widened the historical inequalities that the PNP had sought to close (Weis, 2005). And as harsher and more austere conditions were attached to new adjustment loans, Seaga was forced to admit that Jamaica did not have the capital resources to “indulge in a totally free economy” (Harden, 1985)

Manley and the PNP returned to power in 1989 but this time without their explicit ambitions for a new world order. The state they returned to now had its independence further constrained by foreign control and debt. In a 1989 pre-election interview with Kathy McAfee, Roger Robinson, the World Bank Senior Economist for Jamaica, spurned the self-reliance strategies of the 1970s as irrational, and was secure that the party could no longer advance them:

Now the lawyers and others with access to resources are interested in external export investment. *Once you have that ingrained in a population, you can't go back easily*, even if the PNP and Michael Manley come in again. Now there's an understanding among individuals who save, invest, and develop their careers that capital will start leaving again if the PNP or even JLP, intervenes too much (McAfee, 1991, emphasis mine).

Fittingly, the PNP's return was marked by an endorsement of neoliberalism similar to their previous support of third way socialism. PJ Patterson, who took over leadership of the party from Michael Manley in 1992, led the government through a period of market liberalisation, deregulation, and further privatisation. The costs of this route were not lost on Patterson, who had been an active member of the party in the 1970s, but he

framed them as unavoidable, in that local policies must now be consistent with what he referred to as the “international context” — that is, as set and as driven through, institutions like the IMF & World Bank and by the demands of global capitalism (Patterson, 2004).

The PNP remained in power for 18 years across three elections. While they would lose to the JLP in 2007, they returned to leadership in 2012, through my year in the field in 2014, only to be ousted in 2016 in a single seat loss to the JLP. The election, according to statistics from the Electoral Commission of Jamaica (Electoral Commission of Jamaica, 2017), had the lowest turnout on record since 1983, an election that the PNP had boycotted.

Despite the country’s long history of tribalist politics, the ideological distance between the parties is harder to discern today, unlike in the 1970s and 1980s. Obvious ideological differences have been subsumed within the context of servicing international debt, and with the influence of foreign investors over production and consumption, Jamaican politicians have been limited in their ability to change conditions on the ground. Regardless of party, the government’s goals appear largely to construct the nation as primarily capable of repaying loans and ready for foreign investment in industries such as Business Processing Outsourcing and Logistics⁵.

While the Jamaican economy had shown some growth as the twenty-first century opened, the global recession of 2008 reduced vital tourism, remittance, and foreign investment, and decreased demand for the country’s exports. This resulted in another round of international financing arrangements in 2013 — USD \$2 billion from the IMF’s

⁵Here, officials tout the nation’s improving ranking and global competitiveness in lists such as the World Bank’s Doing Business Ranking (from 85th to 58th in 2015), the Logistics Performance Index (officials touted a jump from 124th to 70th), and in the Global Competitiveness Index (improving from 94th to 86th) (Tholons and Inter-American Development Bank, 2012) . Where the improvements are modest, so is the story: adherence to austerity measures has led to stability & growth.

Extended Fund Facility, the World Bank, and the Inter-American Development Bank (International Monetary Fund, 2013). The island continues to suffer through high interest payments, peaking at 17.3% of GDP in 2009—then the 4th largest debt burden in the world—and 8.2% in 2014, when just over half of the national budget was allocated for debt service (International Monetary Fund, 2014). This has created an ongoing crisis, albeit one that Levitt argues has not been accompanied by any real sense of urgency, leaving the country through the opening of the twenty-first century, in a “holding pattern of economic stagnation and unsustainable social tensions” (Levitt, 2005, p. 312).

2.6 Tracking Innovation to and through the island

This is the background against which tech entrepreneurship is now mooted as a solution for addressing youth underemployment and for providing the innovative engines that can produce new economic bases. While internet platforms have existed in Jamaica since shortly after the arrival of commercial internet access in 1995 and the dot com boom that would follow in the US, the explicit focus on the startup as a community effort and national focus only began in earnest over the last decade. Kingston Beta, the most popular meetup for the local tech community, began in 2007 but it was only in 2010 that they began to focus on pitching and business models. Caribbean BETA, the first tech entrepreneurship conference, launched by the same team, was held in 2011, followed by the first World Bank sponsored Digital Jam pitching and training event in 2012. Startup Jamaica (SUJ), the national incubator, only admitted its first cohort in summer of 2014, just as I was leaving the field.

I first visited Kingston Beta in 2011. On that night six teams made pitches, sketching out visions from paperless offices to online marketplaces and apps for music curation.

One app, Tump, was a standout. The team had carved out a design language and branding that was similar to that of Yelp, the Silicon Valley based crowdsourced app for business reviews then preparing for its IPO, while remaining rooted in a local metaphors and offering an impressive seeming set of features.

But they had launched it as an app for the Blackberry. No one in The Valley would have done that then. While the Blackberry might have been the dominant smartphone platform leading into the iPhone's release in 2007, by 2011 the company was in free-fall as Apple and Android claimed their marketshare⁶. In the US, the "BB" was strongly identified with corporate use but in Jamaica, it was about lifestyle:

*Some man cud'n get nuh gyal if dem neva did have nuh PIN
If a never fi di Curve, fi di Bold, fi di Pearl, di Gemini, or di Javelin
Dem woulda never have a nerve fi even pssst to Carolyn
Dem woulda never have a girl fi even call dem dar-ling
Wi ah nuh blackberry gallis, becah dat ah nuh our ting
Mi haffi wonder all di time,
Wah dem woulda do, if a neva fi Digi, Claro, or Lime,
Di gyal dem wudd'n have some bwoy pah dem mind
Tell a ting, fi stop waste 'im time
Di gyal dem nuh wah nuh nudge, nuh wah nuh berry
Gyal dem nuh wah man wah ordinary,
Suh we nuh badda pressure dem fi di PIN fi di berry*

The excerpted lyrics are from a Dancehall track "Phone Gallis" by Chino, released in 2010. With its relentless pace of production (Manuel and Marshall, 2006), dancehall

⁶Global smartphone OS market share held by RIM (BlackBerry) from 2007 to 2016, by quarter. (2016, November). Retrieved November 26, 2017, from <https://www.statista.com/statistics/263439/global-market-share-held-by-rim-smartphones/>

music has long been a weathervane for Jamaican cultural happenings and the song is one of many that critically interrogate the relationships between technologies and the island's culture (Hope, 2006). Chino's view, carried throughout the rest of the recording, is that the phone has enabled a group of men who would have had to sit on the sidelines beforehand to now communicate effectively with women. Being a *gallis* or ladies-man, has long been viewed as important part of the Jamaican male constitution, and men are often graded by the dexterity of their lyrics and their bravado in approaching women (Batson-Savage, 2007). The BlackBerry equipped ladies-man with his reliance on a technical artefact was alternately a weakling, an interloper, and a success story.

The phone's citations in local music showcased a popular discourse around technologies in a Global South context that went beyond a messianic imagining of its potential. At the time, this use of, and development for, next-generation smartphones like the BlackBerry was not being addressed in studies of ICTs in low-income, developing world contexts but it was clear that these models ("the Pearl, the Gemini, or the Javelin") were as familiar with many locals as they were in any developed nation—perhaps even more so.

By my return to Jamaica in 2014 for fieldwork, developer and consumer attention had switched to iPhones and Android devices, just as it had across the globe. In an April 2014 newspaper interview, Peter, a *teka* or pickpocket, declared the BlackBerry era over: "We don't go work any and anywhere. We only do certain year-to-year parties; parties weh we can get di phone dem wey people want - Android, Galaxy. A dem a do it now. Nobody nuh want BlackBerry again⁷".

⁷In 2012, a stolen BlackBerry phone would have fetched the "highest prices in the 'streets'" — \$15,000 JMD (\$174 USD at the time) and upward. By 2014 the latest BB could be had for \$8,000 JMD (\$73 USD). Getting a Samsung Galaxy or an iPhone would require at least \$20,000 (\$182 USD). The market had spoken (C. Robinson, 2014).

This discourse over the blackberry demonstrated the complicated relationship that mobile technologies were tracing across sites like Jamaica. The BB's early prominence reflected the close ties between technology flows in the US and those in Jamaica, driven by the country's diaspora and the entrepreneurial practices of informal importers⁸. It also showcased an unexpected diversion from deterministic expectations. This, but briefly bifurcated, path rested on the intermingling of transnational flows, the particularities of Jamaican cultural and technical infrastructure, and the Blackberry's symbolic and practical⁹ currency.

This situation can trip up models of technology transfer that centre on a unidirectional or linear "development" discourse. In Jamaica, work in this mode has provided critical analysis of the distributional consequences of new platforms to generate new national economic possibilities and to improve development outcomes such as reducing poverty and narrowing the digital divide (Dunn, 2009; Thakur, 2012; Thakur and Cozzens, 2008; Commosioung and Waller, 2008). But these approaches also risk reifying and enforcing a static view of technology and culture, and in so doing stabilise dichotomies between "here" and "there" that miss the complex paths between what has been billed the Global North and its South.

Drawing instead on postcolonial studies, Irani et al. (2010) outline an approach that focuses attention on this complex and occasionally contradictory set of "translations, dependencies, conditions, and histories". This provides for a polyrhythmic reading of the cultural encounters of human computer interaction within the context of contemporary

⁸See Thakur and S. Johnson (2015) for more details on the ecosystems that sprung up around the import and servicing of smartphones — which is somewhat outside the scope of my inquiry. In this study, the phone served to facilitate business transactions among existing informal entrepreneurs and enabled a network of phone card vendors, handset importers, and repair businesses. Unlike the world described I attempt to describe in this study, the authors do not investigate the devices as surfaces for the active development of products.

⁹Its PIN, peer to peer, messaging feature, which Chino alludes to, allowed for unmetered communication when compared with per-message SMS fees.

globalisation that makes it difficult, productively so, to present a simple or deterministic view of design and technology transfer as occurring directly from “here” to “there” where “there” is other, apart, disconnected, and stably distanced from “here”. By staging their work and examples in diasporic communities that are both here & there, the authors illuminate the fluidity of cultural and national boundaries rather than static descriptions of culture and ethnicity, and trace more representative circuits of diasporic, transnational patterns made by technology users and designers. Indeed, this call to study routes over roots is something cultural theorists studying the Caribbean, long cued to the region’s hybridity, have insisted upon (Hall, 1999, 2001, 1991; Thomas, 2007; Robotham, 1998).

This approach also recognises how the global flow and production of ICTs is shaped by the uneven flow of capital. This too has significant implications for a range of HCI interests from usability to design methods but Irani et al. (2010) argue that these alignments between capital, technologies, and development discourse have remained critically under-examined within our discipline. Helpfully, because of its fundamental alignment of technology work with capital flows, the startup makes this difficult to avoid.

This is pointedly demonstrated through the support of the Caribbean startup ecosystem by The World Bank, which also underscores the observation of Ferguson (1994) that development reframes social issues into a technical domain and de-politicises them. By positioning tech development and entrepreneurship as a way to effect a national reorientation, The Bank has, intentionally or otherwise, collapsed three kinds of development into a unified project: work on software and technology more broadly; a post WWII project of intervention in the Third World; and the advancement of capitalism as “a geographically uneven, profoundly contradictory set of historical processes” (Hart, 2001,

p. 650)¹⁰. Neoliberalism then runs through Jamaica twice: once, explicitly, as economic and political praxis since the 1980s; second, more subtly, through tech design, development, and funding decisions deeply influenced by The Valley's norms as proxied by The Bank.

Analysis of these structural links has been a strongpoint of studies of technology production practices in the Caribbean. In the most relevant example, a range of authors have provided critical perspectives on national attempts to establish a data processing and ICT industry by courting foreign investment and expertise that would help the country industrialise and transition to a knowledge-based economy (Skinner, 1998; Mullings, 2004, 1996, 1995). As a rough precursor of the incubators & accelerators of today, these efforts for securing jobs and industrial knowhow were also encouraged and facilitated by The Bank, and promised a new era in which Jamaicans and other Caribbean citizens could find global advantages and a new identity via a symbolic and practical conjunction with computers and data (Pearson and Mitter, 1993; Freeman, 2000; Mullings, 1999; Klak and Myers, 1998; Mullings, 1998). These studies call attention to macro-economic conditions and flows of capital, structural adjustment policies, and industrial innovation that at first enabled new possibilities but then ultimately limited the horizons of these ventures for both workers and local data processing entrepreneurs. I discuss this at greater length in the chapter *VideoLogs and Data Identities*.

However, in Jamaica this combination of cultural, technical, and national analysis has largely been applied only at a large industrial scale, perhaps because of the relatively small scale of ICT production in the island outside these data processing enclaves. It is only more recently, with the radical improvements to mobile networks and the devices themselves, and the availability of the infrastructures described in my opening introduc-

¹⁰Here, also see Thompson (2004)

tion, that a viable market and platform for local developers has begun to emerge¹¹. So while there has been work on the cultural forms around technology use, and its potentials for poverty reduction, and key analysis of large scale corporate and development structures, there has been far less emphasis on examining developers like those of Tump and the new hopes in a community like Kingston Beta and the uptake of The Valley's design methods. This is the space I hope to help fill in.

2.6.1 Startup Subjectivities

Finally, the startup, like any form of entrepreneurship is a means for achieving new subjectivities and ways of being in the world (Rose, 1992; Bröckling, 2016; Freeman, 2014; Giddens, 1991). Tech entrepreneurship is offering its own particular forms and entanglements of self, labour, and market that are further informed by the constraints, opportunities, and often utopian ideologies of technology development. In my work with black entrepreneurs in Jamaica and California, I found this search for an authentic and innovative self being articulated through the economically, personally, and epistemically transformative possibilities of launching a product into the market.

These startup founders are themselves entrepreneurial projects. Moving from pitch to pitch, product to product, they find themselves also under constant renovation, their personal trajectories woven into the ebb and flow of the market, and their outcomes hinged on emerging technologies. What they develop and test is not just the product but themselves as its representative. To understand this shaping of an entrepreneurial identity in Jamaica, we need to be aware of a few more key lines that converge within the

¹¹Horst and Miller (2005) argue that while the Jamaican government had moved purposefully to grant licenses and spectrum to cellular operators, they had not focused on the internet's potential, unlike in Trinidad & Tobago, where higher incomes and more government encouragement led to earlier, and higher, internet use.

¹²Excerpted from "Vision 2030 Jamaica : National Development Plan" (2009)



Figure 2.2: "The Educated Jamaican", from the Vision 2030 Popular National Plan¹²

tech startup. This helps us develop a richer understanding of the relationships between technology, cultural production, and global political and economic processes.

First, while being a tech entrepreneur is a new identity, owning and operating a business had already become a critical axis of identity for black¹³ Jamaicans (Robotham, 2000). While most Jamaicans are black, following the earlier overview of the island's

¹³The island's racial and class order is difficult to gloss but critically, when I say Black Jamaicans I refer to Jamaicans with dark skin and phenotypically West African features.

economic history, key sectors of the national economy, such as mining, banking, or tourism are still owned by the local minority elite (white or brown/creole) or by foreign capital. Informal entrepreneurship has long been common, from the provision grounds and markets during the plantation era (Mintz, 1974), to the Informal Commercial Importers that began to flourish in the 1980s (Ulysse, 2007), but it was in the 1990s that a rising black political leadership with the PNP explicitly sought to significantly disrupt that racial economic order that had long been dominant across the Caribbean (Hall, 1977; Austin-Broos, 1994). They began promoting black entrepreneurship by putting policies in place to encourage a transformation of small and medium sized business owners into a capitalist class while also providing mechanisms for the uplift, through commerce, of the black working and lower class (Robotham, 2000). So while the tech startup and its ecosystem are relatively new to the island, the underlying push towards entrepreneurship as an economic and cultural project has been long underway.

Second, technology development, as innovative practice, is a key element of the country's development plans, as part of a trajectory that has long emphasised a marriage of technology and proper values. Fifty years after the abolition of slavery, Jamaican leaders emphasised combinations of infrastructure (roads, scientific agriculture) and respectable values (good labour and godliness, to name two) as critical to the nation's political and economic independence (Thomas, 2002; Five of Themselves, 1888). Decades later, nationalists in the post-WWII era continued to stress science and technical achievement, along with orderly mind and body of Jamaicans as crucial to achieving legitimacy and political autonomy from England. State, machine, and man were linked together as national and corporate leaders focused on creating "national and salable identities" (Maurer, 2001, p. 472).

In the 1980s and onwards, during those earlier mentioned shifts in the national economy, as national planners courted a service industry of business outsourcing and data processing, they emphasised satellite connectivity, and the courtly attitudes and trainable bodies and minds of citizens (Klak and Myers, 1998, 1997). Today, the current national development plan, Vision 2030, emphasises a move from “lower forms of capital” — the previous economic bases in natural resources and tourism — to the higher forms based in “cultural, human, knowledge and institutional capital stocks” that can shift the nation into “higher stages of development” (Planning Institute of Jamaica., 2009). The plan features the now standard gestures in national plans towards investments in science and technology but it also calls for the cultivation of “mindsets and cultures favourable to innovation” — a call for respectable virtues that underscores the same concerns of the nineteenth century.

In a letter written for the 55th anniversary of Jamaica’s independence, the Governor General condenses this into a challenge for the island’s youth:

“These millennials hold the key to our collective future. We must therefore empower them to increase their self-confidence, their energy, *their capacity for innovation and, above all, their promotion of the values of discipline, good order and personal responsibility*. When we do so, all of us, young and old, can face the future with optimism and with hope” (Allen, 2017, emphasis mine).

The startup, as a container of methods, products, and promises, is attractive to both the state and to individual citizens but this meeting of lines is not without conflict. On one hand, tech entrepreneurs are particularly celebrated as standard bearers of a globally legible mode of innovative self and citizenship around which the government wishes to rebuild the country. Globalisation has swept away one economic route —

preferential trade agreements for manufacturing and agriculture — but it has presented new opportunities in ICT industries and a knowledge economy built on coordination and code rather than industrial manufacturing.

On the other hand, as the Governor General indirectly points to, those forces and flows that have produced the opportunities for Jamaican startups have also made it more difficult for nations like Jamaica to legislate their “cultural content” (Trouillot, 2001). So while global fluidity is the key to the country’s new future and infrastructure, that fluidity has also challenged the project of promoting and maintaining parts of the country’s values within its nation’s modernisation project. This emphasis on regaining cultural control is reflected in the planning documents, which, among other things, calls for a transformation in the island’s culture away from aspects that are “not conducive to innovation and increased productivity” (Planning Institute of Jamaica., 2009, pp. 86).

As a result, the work and life of the startup tech entrepreneur is shaped by myriad and overlapping sources of influence and pressures. These range from casual discussions on new products, methods and best practices, carried out on globally populated but Valley centred sites such as Reddit, Hacker News or TechCrunch. These are echoed or added to by the advice and judgments of circulating experts and mentors at ecosystem events and beyond. Entrepreneurs must also hew to expectations of what is fundable, whether as dictated by funders in The Valley who often set directions across the globe, or as driven by the agendas of institutions such as the World Bank.

These sources of influence set expectations of what a good technology choice should be, along with the frames of a good business, and a good market, and good growth. As participants move through these pipeline events from mind to market, what is produced, more than prototypes or finished products, is a range of subjectivities that reflect these pressures, as Irani (2015) demonstrates in her discussion of the hackathon and the

entrepreneurial citizen in India. However, as with previous global circulating forms and opportunities, participants do creolise as they go (Olwig, 2010): appropriating, and creatively redefining those aspects of Silicon Valley tech entrepreneurial ethos or the World Bank's support system that they believe benefit them. This does not discount The Valley's hegemony but it does point to movements of resistance or ambiguation and to veins of alternative practices.

2.7 Chapter Overview

In this overview chapter I have shown important waypoints in this entrepreneurial journey and demonstrated how attending to the startup allows entry into a wide range of entangled issues that inform transnational technology development. As I have argued, the startup offers its adherents new possibilities to be seen in the world, but these forms of legibility come with costs and constraints. I have highlighted some of the ambitions and imaginaries that are being shoehorned into the form by ecosystem supporters and entrepreneurs and shown how attending to the patterns in these spaces can be extremely productive for situating my key questions about the project of articulating one's value through technology development and entrepreneurship.

Developing and articulating this value requires more than learning new concrete skills. The training programs in these pipelines across the globe centre on a system of lean action and attention to iterative development, popularised by books by Ries (2011) and S. G. Blank (2012) but rooted in Toyota's "Production System", a combination of concrete management practices grounded in a larger philosophy of "continuous improvement" (Haines, 2015). These methods grow to incorporate life, business, and technological choices, shaping practitioners day to day life beyond their screens. Legitimated by

successful entrepreneurs and the experts that circulate through tech ecosystem events, they promise attractive and repeatable templates for good change and right action, orienting entrepreneurs in the difficult task of finding one's initial niche in the market and then growing in value. Participants are united by a search for growth: always becoming, always flexible, agile, and poised to capitalise on emerging opportunities.

I have also attempted to show how the startup and its associated production methods are interwoven with an ongoing project of establishing national economic self-reliance and identity. With dwindling physical resources and few opportunities for advantages in competitive trade, tech entrepreneurship promises to accelerate a national transition to a digital knowledge economy. In so doing, the startup reflects a multifaceted will to improve (T. M. Li, 2007) that pulls together work on the citizen, country, and the company.

Understanding this requires analysis on several levels. In the following chapters, I follow these journeys across kaleidoscopic debates to provide more details and fruitful complications on what I have laid out here. In doing so I shift between the ethnographic present and the archived past, between native and outsider, Jamaica and California, ethnographer and engineer, offering insights that juxtapose the national and personal, historical and present, the technical and the cultural.

In **Notes on Construction**, I discuss my methods chosen for this study, premised on co-construction—*building with*—as an approach for understanding the experiences of my participants and informants as we wrestle with the potentials and realities of technology development. I examine the potential for this mode of participation through an exploration of my citizenship, and my use of my self as subject, boundary object, and instrument of knowing. By interrogating the issue of my “nativity” — a Jamaican studying Jamaicans; an engineer studying other engineers; and an analyst immersed

in my own exploration of technological possibility and self-making — I stake out the personal and epistemological ramifications of *building with* for a more entangled vision of participatory design and research that rejects a de-passioned world and recognises and explicitly builds on our subjectivity and affective bonds (Despret, 2004; Bellacasa, 2011), a course I continue exploring in the chapter **Making Things Together**.

In **Proper Entrepreneurs?**, I dive into a debate on proper business practices from emic and etic perspectives, showing how evaluations of good or proper forms of entrepreneurship are being shaped by the new opportunities and demands of becoming legible to Silicon Valley and a long-seated dualism in Caribbean culture on respectability and reputational lines. While technical capability is an important part of this debate, I emphasise how the conversations concern how to comport oneself within narrow lines that define innovation, “cultural fit”, and value.

In the two chapters that follow, I examine how two product teams are navigating this startup ecosystem. I trace two different routes that take them and their work beyond the island, paying particular attention to intersections between capability, identity, values, and economic value. In **VideoLogs and Data Identities**, I look specifically at the promises of data within the startup effort, examining how one local startup is navigating the mythologies of data and the realities of its production to build a product that provides businesses with emotional analysis of their customer’s feedback. The team’s engagement with data is a reflection of their techno-utopian vision where, among other things, the messiness of human emotion and decision making can be cut through by the acuity of computer vision.

It also a strategic decision to outfox racial and geographical barriers. Their work involves Big Data, Artificial Intelligence, and Machine Learning — all symbols of modern innovative technological practice that can provide new identities for Caribbean citizens,

hopefully neutralising these biases. By placing their efforts against earlier attempts to develop a national data processing industry, I look at how similar strategies and hope informed a national industrialisation and modernisation effort thirty years earlier. I look at the failure of that effort for lessons for startups like VideoLogs, revealing the new potentials in technological breakthroughs but also the expanding vulnerabilities that follow, leaving country and team in a precarious position.

In **GoLexiGo and Storywork** I discuss another participatory effort to create an adventure game that teaches kids to spell by immersing them in a story world of words that is infused with Jamaican cultural forms and an Afrocentric design language. The team's desire to address discrepancies in literacy and language that hew to class and colour boundaries pulls them into a second storyline, drawn through the debates and disjunctures in Jamaican cultural and political debates about race, language, and identity.

Unlike VideoLogs, the team is staffed by artists, not computer scientists. The game is established on visual design, character development and African storytelling traditions, not cutting edge technological breakthroughs. Where a black, Jamaican identity is ostensibly a liability for VideoLogs' global ambitions, for GoLexiGo it is a resource for children's empowerment and a unique selling proposition across an African diaspora. In both cases, their product development is rooted in their sense of self and aspirations for the future, found on the one hand, through authoring the opening possibilities of a technological capability, and on the other, through roots, community, and tradition. But we must be wary of easy dualisms. Both efforts demonstrate the difficulties in turning an idea into a product and then a business, and the difficulties in aligning present capabilities and a larger vision.

Now that I have set out the landscape across which today's tech entrepreneurs must navigate, in two closely linked chapters, I draw on my experiences as an instructor in training programs, an observer at ecosystem events, and as a partner with teams like VideoLogs and GoLexiGo to explore the possibilities for other versions of design and development that build on these insights and can support the work of Island designers and others far beyond its shores. In the first chapter, **Pipeline Problems**, I begin with examining issues within this entrepreneurial support system, which is broadly representative of patterns across the developing world, and particularly, the Black Atlantic and African diaspora (Gilroy, 1993). I argue that these attempts to create pipelines from mind to market are based on unsustainable visions of technology, design, and technical skill. Pointing to structural problems and misalignments, I offer possible framings of skill and its development that would be better suited to these environment by reading together theories of object materiality and dependency laid out by Hodder (2012), along with the interrogation of skill, technique, and technology by Ingold (2001).

Finally, in **Making Things Together**, I return to HCI and our commitments, and argue that these startup ecosystems, deeply implicated in the contradictions and problems of capitalism contain a glimmer of a version of technology development that could be more considerate of our place in the world. I argue that HCI, as part of an examination of our own practices and place in the world, should take part in these conversations and support their ongoing becoming as sites of equitable technology development across the globe. In doing so, building on Bellacasa (2011), Despret (2004), and Taylor (2017), I ask how we, as HCI researchers, might weave into our practice all the worlds we care about and how these commitments can help us cultivate the kinds and qualities of caring work that can make for a design practice and scholarship that asks and allows more of ourselves and of others together.

In **Concluding Notes: An Island is a World**, I summarise the main themes and points made in this project and argue that Jamaica, though at the global margin's of technology research and development, contains vital insights for practice at the centre. Ultimately, my larger project is about technology development as a commitment to a continuing, unfolding, discovery of self and others in which making things together makes us together. The startup in the Caribbean, with all its complexities and contradictions has proven an ideal place to begin. I show how focusing on the startup has allowed for a weaving together of these threads in a single object of inquiry, though somewhat unstable and unruly, that reveals insights applicable beyond the island's shores.

2.8 Sources and Sites

I introduced this document with an interaction with the police in order to demonstrate a few key elements of this study. First, that I am Jamaican, and as I have explained in the earlier section on situating a study on the island, I make no pretence to a disembodied objectivity about my work on the island. The stop also makes it clear that I am also not quite Jamaican. I have now spent most half of life in the United States, struggling with many of the kinds of in-between that my participants have reported feeling in their own ways. As the title of the dissertation suggests, this has been a multi-sited research project, which took me frequently between my homes of California and Jamaica. During that time I realised just how plastic my identity was; how much who I was depended on where I was; and how who I was deeply shaped what I was able to see, understand, and report here.

Second, as I explained to the officers that night, I spent roughly six months in 2014 working within the programs run or supported by InfoDev's EPIC system. I was first

a technical trainer for the pilot of the Caribbean Mobile Innovation Program (CMIP), where I helped develop and adapt curriculum, and ran fourteen weeks of sessions to teach a group of budding entrepreneurs a range of skills for designing apps and launching a company. After returning to California, I worked as a consulting engineer with the national Start-Up Jamaica (SUJ) incubator during 2016, where I supported, remotely, teams and staff through the startup incubation process. Working within both these programs provided an unplanned but vital perspective from the administrative side of the entrepreneurial ecosystem.

This effort was a complement to my main ethnographic “sites”. During my 9 months of formal field work, I attended meetups, hackathons, and conferences, interviewed entrepreneurs and government officials, and collected a corpus of documents by following media coverage and debates on a range of intertwined technology and economic issues. And I participated in work with several startup teams, two of which, VideoLogs and GoLexiGo, I have described here in separate chapters. Having developed what I hope to be lifelong relationships, I continue to partner with them and with the others who allowed me into their personal and professional lives.

Much of this work continues. This is a reflection of the fact that one rarely leaves the field completely: a realisation underscored by the fact that, while I no longer live in Jamaica, I make frequent visits and remain deeply connected to the place of my birth. As such, this document is also a reflection of how much the presence of ethnographers shapes — not just records — the lives of others and how that, in turn, shapes our analysis and our personal lives.

CHAPTER 3

NOTES ON CONSTRUCTION

The workshop had been organised by a few Jamaican Microsoft employees to support the soon to be built Microsoft Innovation Centre² (MIC) on the UWI campus in Kingston. I had met Marcelle, the company's country manager at Digital Jam two weeks earlier and offered to help in anyway that I could. I was to be a mentor.

The forty plus attendees at the workshop are from a smattering of Kingston high schools and from the nearby University of Technology (UTech) and University College of The Caribbean (UCC). I recognise a few of them from Digital Jam. After a round of introductions I learned that most are either currently studying Computer Science or hope to be soon. A few others are studying Marketing while another student identifies himself memorably as "programmer-ish". I nodded in recognition.

The challenge for the weekend was to collaboratively imagine, and then begin producing, prototype mobile apps for the annual Boys and Girls' Athletics Championships or "Champs."³ Our objectives are to "create a great, quality app for champs", "build a community", and "have fun". I, however, am worried. There's a lot to do and we have only two days.

We dream up use cases. What kinds of things might our app do? No idea is bad, Marcelle prompts. The session is boisterous and led by Shemiele, who has flown down

¹from author's personal email archives

²When the centre was announced in late 2013, Archibald McDonald, the university's principal, noted that other countries had made advances in their socioeconomic well-being by "refocusing their interest in software design and technological innovation" and the MIC would mark "Jamaica's official introduction into this new mode of economic development" (Jamaica Observer, 2013). Today, the centre, one of the elements referred to in the national ICT strategy, has been silently abandoned

³In progress for more than a century, Champs is a local and internationally popular track & field competition for high schools. It fills the national stadium and local media for days — the Jamaican equivalent of the Olympics with high schools as nations. Rivalries are intense. This was the event where new national figures find their stage and accolades

Sent: Monday, March 17, 2014 6:18 PM

Subject: MIC Jamaica App Workshop this weekend @ UWI Mona

Are you ready to create an app? Are you ready to publish a hit game? *If so, [join us this weekend for an intensive app workshop](#).*

Are you a seasoned developer? Are you a beginner? Are you interested in the business side of technology? *If so, [come along and let's create something great!](#)*

Click [here](#) to reserve your spot for the MIC Jamaica App Workshop this weekend.

Come prepared to get the most out of the workshop:

- Join [DreamSpark](#) (student) or [BizSpark](#) (non-student)
- Check out [Xamarin](#) – install the free [starter package](#)
- Familiarize yourself with the [Microsoft App Studio](#)
- Browse the [WP8 design guides](#)

Please forward this email to anyone who may be interested.

Figure 3.1: Welcome to an intensive app workshop¹

from corporate headquarters in Redmond. What if we could provide a schedule for events with alarms? Perhaps we could make profiles for schools and individual athletes and leaderboard standings? Provide health tracking and wearable tech for athletes? Create a build a character workshop for a champs-based game?

As the ideas carom off the classroom's concrete walls and cracked tile floor, one caught my interest. Pablo, a fellow volunteer mentor, had suggested it. How about an app that would allow the event's huge diaspora audience spread far beyond the stadium to cheer for their teams? Maybe, he adds, we could hook this system into the stadium's speakers and make these virtual cheers real. The idea floated up above the riot of ideas and was on its way out, unacknowledged by the workshop's organisers.

Why not? I asked out loud, to everyone and to no-one. In fact, why not pull together a small group and try to make it ready in time for the competition the following week-

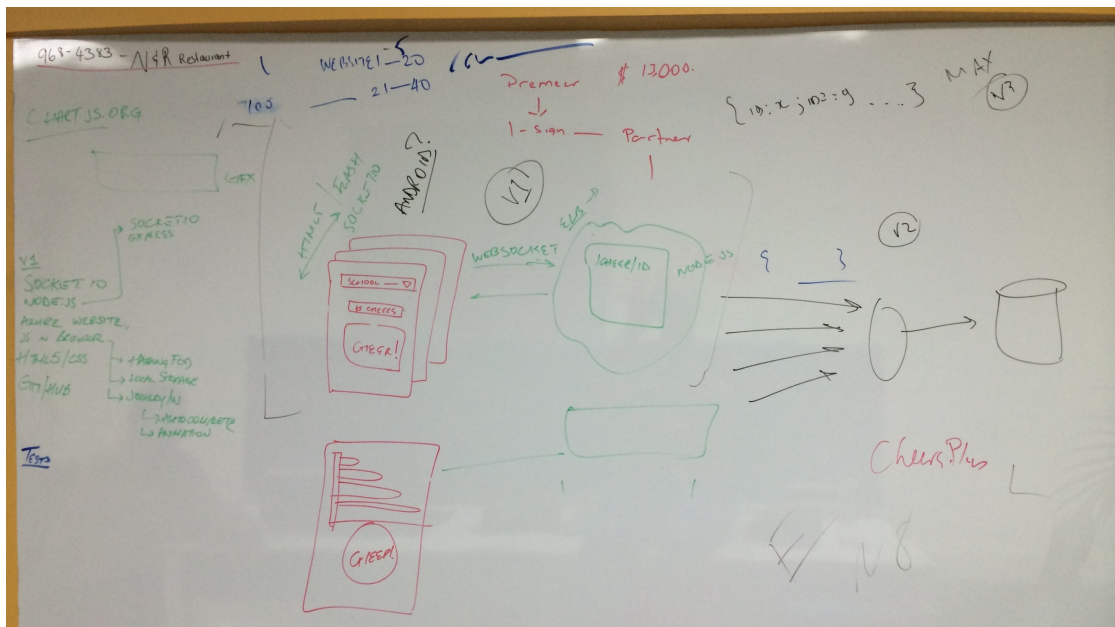


Figure 3.2: Cheers: Early whiteboard sketches

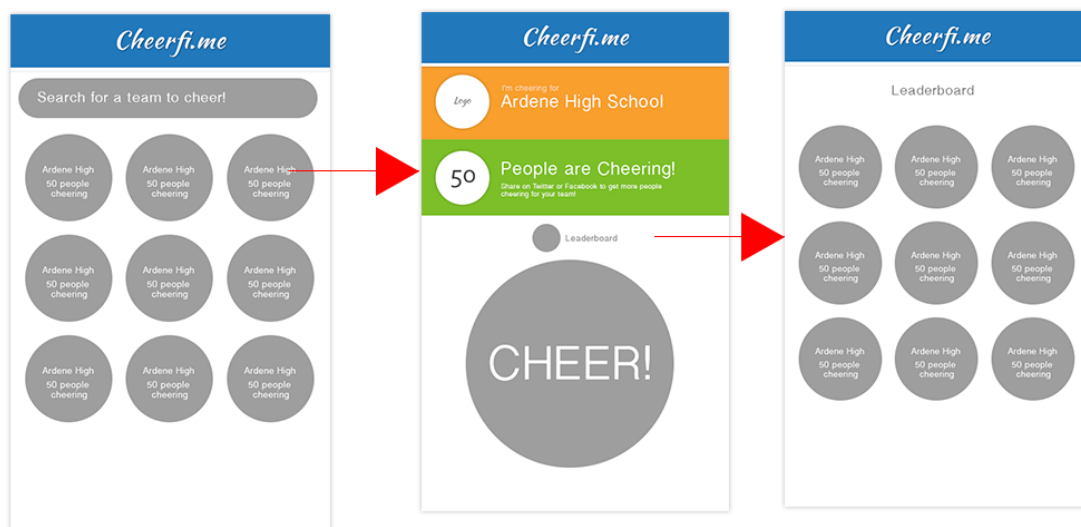


Figure 3.3: Cheers: Proposed Storyboards for the web app

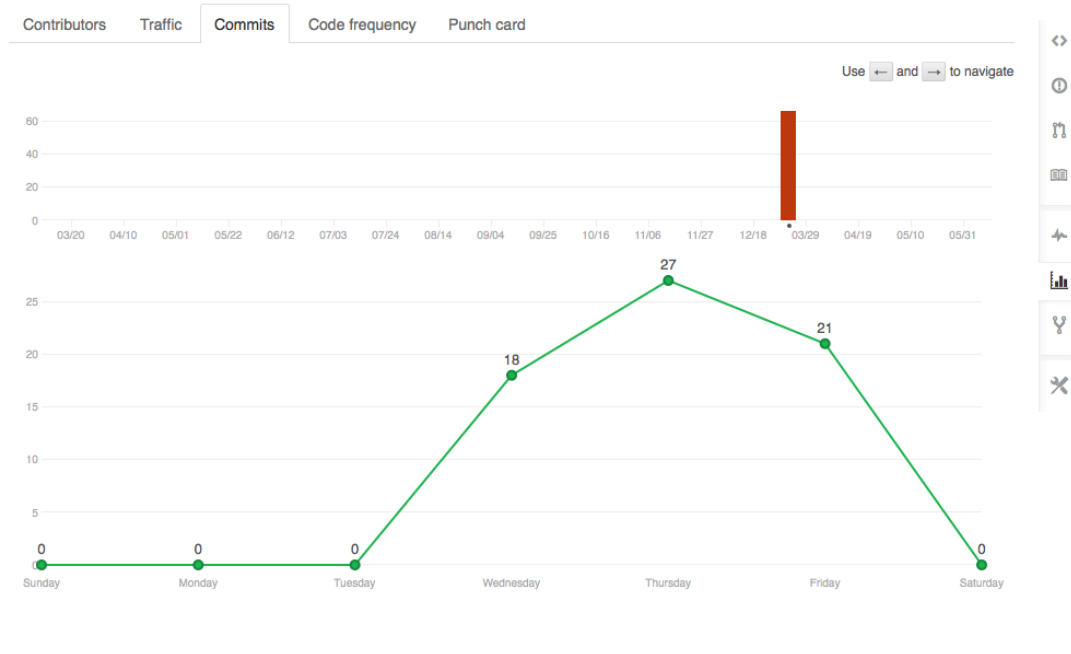


Figure 3.4: Cheers: Checkins of code committed during a hectic week

end? No one, including myself, had the good sense to think otherwise, and so we did the inadvisable.

What resulted was a collaborative exercise of ideation, design, implementation, and ultimately, a failure to launch. Our app made it into “production”, in that moved from that idea to sketches, from those sketches to a prototype, and from a prototype into functional (but buggy) system that remains running in the cloud three years later.⁴ But it never made into a product with users.

As part of a broader investigation into the values, practices, and futures of a technology community however, it was a successful experiment into how *building with* could provide an *inquiry into*. My relationship with Pablo, and Clive, his startup co-founder, was cemented within that workshop and the flurry of activity that followed (fig. 3.4).

⁴Available at <http://cheerfi.me>

From this base in co-construction I could attend to a cross section of concerns. These began in seemingly narrowly technical considerations of form and function but as an idea becomes a prototype, a product, and the core of a business, these concerns telescope into the cultural and socioeconomic settings that these technologies emerge from, and once surfaced, dive back into. Co-construction also drew attention to my own capabilities and responsibilities as an intervener — accidental or otherwise — and the ethical concerns of pushing for collaborative efforts while planning for the gathering data and the career that might result.

It pushed me to rethink *with*. I had spent my first 18 years on the island, and my arrival for fieldwork 16 years later was a return that brought with it the complications of identifying as a “native” ethnographer and more. I had spent a little over a decade as a systems engineer in The Valley’s internet industrial complex, doing much of the same work my informants aspired to be doing, in the place where many of them hoped to be doing it. And I had arrived in the middle of another project, an autoethnographic study of self-tracking practices in which I was inquiring into globally developing relationships with popular health & fitness tools by trying to discover and improve my self through the data they provided (Williams, 2015).

Building with conjoined that self-experimentation with theoretical study and preparation for ethnographic fieldwork, my past as an engineer, and my present as a fellow Jamaican also trying to figure out his place in a world increasingly being driven by digital technologies. *Building with* by *building on* shared aspects of this identity was at first a tactical decision — it was a good way to secure access and gather “data”. But it quickly became a political and ethical choice as well. It offered me a compound form of engagement with the world my informants were exploring, and a syncretic tongue with which to describe it. Punctuated by frequent commutes between homes in both countries, my

time in the field provided an invaluable forum for an exploration of these overlaps and my evolving relationship between participation and observation, technology criticism and production, and The Valley and The Island.

In what follows, I discuss my approach to participatory co-construction as a method of inquiry. I show how this helped me rethink nativity and difference and to set out a path for joint exploration. In the second half of the chapter I discuss my approach to representing this exploration which weaves together text and various traces: ethnographic field-notes, chat logs, early interface sketches and wireframes fig. 3.2, code checkins fig. 3.4, specifications, and in the case of the “Cheer Fi Mi” web-app, “live” products of uncertain stability. I close with a brief conclusion on the implications for HCI of working from a native, embodied perspective

3.1 “Morning sport” and rethinking participation

Working with had always been part of my plan for my time in Jamaica. I thought I would use collaborative technological design as a platform for finding, tracing and interfering in the issues and publics being summoned by the flux of newly arriving technologies. I hoped to take advantage of the pliability of these technologies to make objects for debate, and platforms from which to understand Jamaica’s presence in a global technology and knowledge industry.

Fortunately, this did not develop as I had imagined. I thought I could, and should, invite participants into a space of my design. This mission was a flawed and vain one. In such a situation, despite labeled as participatory and collaborative, I would frame the production and values and set the boundaries of discourse.

In retrospect, why would they do this? Why expend this labour and offer their experiences to a project from which they would hardly benefit? My idea seemed little different from the many hackathons and workshops I had attended and learned to criticise during my time in Jamaica. These events often validated the needs of their hosts first and only then attempted to provide participations with actionable information or long-term skills. Instead, I participated in their projects.

My parents were raised in different, though equally rural, hilly interior areas of the island. It was my mother though who taught me about *morning sport*. *Morning sport*, *partners*, *lend-day* and *digging* were all parts of a system of labour-exchange common in the small settler farm communities where they were raised. Relatively large areas of work or projects were achieved through co-work and an “indirect and hypothetical balance or exchange of work” (Smith, 1956, p. 12).

None of the teams I built with knew about morning sport. They were likely too distant in time and space from the farming communities in which my parents were raised. Still, I took my commitment to this model seriously. They provided me with critical insights — my work would have been impossible without them — and in return, I offered all that I could. I could not be “just” a researcher. In the field, I could not present myself without references to my life in The Valley, my work as an engineer there, and the collected expertise, connections, and privileges I had gathered by the time I had returned to the island.

I tried to put all my identities to use. I approached the world they were venturing into as a scholar critical of it, an engineer of its infrastructure, and as someone whose career and personal life had long been animated by its open possibilities. I helped teams who were looking abroad for customers and funding by connecting them with The Valley networks I could muster. With the impetus of my university affiliation and my

work history, I became an asset that could be and was often deployed on the “About Us” slide of a pitch deck⁵ as a technical advisor, product manager, or board member with the right credentials and the right look. I functioned as a human boundary object (Star and Griesemer, 1989), smack in the middle of different cultures, and useful in similar ways. After more than a decade in corporate America and The Valley, I had learned to be what the industry refers to as a “culture fit” (Klein and Diaz-Hernandez, 2014).

Before arriving in Jamaica, I had hoped to work at one of the major mobile carriers but that had not panned out. By working primarily with startup teams instead, I was not joining large organisations where I could participate without measurable external impact. These were small teams, and I joined at early stages. *Building with* meant participating in product development, writing code, imagining new features, and making strategical decisions. They looked to me for advice, and the choices I made mattered to their trajectories.

I tried to make suggestions and provide informed options for action without directing their decision making but my judgment, based on my past as an engineer and my present as an HCI researcher⁶, was part of why they had invited me to participate. I had to be careful to separate, and reflect on, my own ideals and values, and how that might interfere with their goals. This made participation a constant balancing act. As someone critical of The Valley and the dominant culture of the tech industry, shouldn't I challenge Island plans that mimicked problems I also identified in The Valley?

That critical voice could lead them astray when they wanted to follow established, but to me problematic, routes for success. There are penalties to be paid for not following

⁵A deck of slides made to present the company's fundamentals to investors. The contents vary but they typically outline the problem the company is trying to solve and its market “fit”, key members of its management team, and business model & financial projections.

⁶In building software for an imagined audience, and then iteratively making a product for a realised market, they too, in their own way, were performing research on human computer interaction

along, and as underprivileged participants trying to make their way through a flawed system, why should they bear the brunt of doing what I thought was the right thing when those with privilege might not? Why should the burden of fixing the system fall on those at its margins?

3.1.1 Equity and Linking Up

As the teams I worked went from idea to business, they sought funding and investors. And the potential arrival of investors, brought discussions of the Cap or Capitalization Table. The Cap table tracks equity ownership of the various stakeholders in the emerging company. Discussions of the table were debates about who added value to the operation.

I have yet to accept equity with any of the teams I have worked with. How I would formally accept it was unclear, at least while this dissertation project was underway. My training had not prepared me for this sort of interconnection in the field. And, although it would have clarified some elements of my relationship with the team, at least from their perspective, having a financial stake would blur other lines. Who would I finally be accountable to?

This is surprisingly difficult to answer. As I explained to my participants, I did not decide to join their teams in order to secure a financial payday. I was there as a PhD candidate, doing research.

But I was not there just to secure “data” with which to return to the academy. I wanted to see successful Jamaican products in general, and I believed in many of their ventures specifically. And as a simultaneous participant in an industry known for its

homogeneity, I was committed to improving the diversity of its people and ideas. This was expressed within my research practice, not held outside it.

I was also drawn into their world because I frequently checked in and engaged. And checking in and offering support was what I had grown up learning to do; it wasn't particularly purposeful. Rooting her analysis in Malinowski's "phatic communion" and her ethnographic work in Egypt, Elyachar (2010) shows how similar patterns of "gossip and chatting" establish ties "for their own sake, rather than for the purpose of conveying any information in particular" (Elyachar, 2010, p. 453). Messaging systems like Slack and WhatsApp, where these conversations are excerpted from, provided an opportune medium for check-ins and continued engagement in and out of "the field". These "link ups" and checkins allowed to us discuss cultural happenings, share videos and memes, and often provided the space for wide ranging discussions beyond the product.

In text, this was all one long running conversation. But on voice and video, most calls would begin with the call and response one can hear across The Island: *Wah gwaan? Deh yah enuh*. What's going on? I am here, you know. They would end with another familiar refrain: *We wi link*. We will connect.

This pattern of "linking up" is discussed in depth by Horst and Miller (2005), who connect this mode of connectivity in Jamaica to a reciprocal pattern both for coping with socio-economic woes and as a recognition of the mutual interconnectedness in everyday life: *I, too, am here*. Discussing patterns of cellphone use by informants in their study of the cellphone's role in everyday life, they write:

The primary way in which Bridgette used her phone can be summarized as "link-up," in which the most important element is not the content of conversations but their use to maintain connections over time...Calls often

consist of exchanges such as “Hi, how is everything?”—“Oh, I’m OK, I’m just enjoying the summer.” There are many strategies for maintaining such connections, even if there is little to them at the time. For example, Bridgette summarized the content of a recent call from a male friend: “I haven’t called him for a while and him ask if mi get rich an switch—that’s what he call mi an’ ask mi.” In other words, he implied that to fail to keep in touch, even about nothing in particular, would be like her saying that she was too good for him now (Horst and Miller, 2005, pp. 760).

Interrogating this further, other authors have emphasised its forms of reciprocity and mutual dependence. In a comment to the quoted article, Barry Chevannes, a Jamaican sociologist, notes that “[e]very link-up establishes a dyadic relation in which the linker is a potential recipient and the linked a potential giver” (Chevannes in Horst and Miller, 2005, pp. 767). In his own community-based research in Jamaica, volunteers expressed hopes of how others, not necessarily those who had received their generosity, would do for them should they be in need: “[t]he linked gives because in her/his own network there are potential givers including the recipient of her/his generosity. The wider the network, the greater the possibilities”. Echoing my experiences with Naira and Pablo and the cap table, he argues that Jamaicans are wary of asymmetrical relations but this results in forms of symmetry similar to but meaningful different from other systems of reciprocity.

For example, unlike American cellphone networks, Jamaican mobile networks are sender-pays only and there is no charge for air-time for receiving a call. Additionally, the majority of subscribers use a pre-paid system and “buy credit” from vendors in order to make calls. Reflecting on a related affordance of the network where subscribers



Figure 3.5: A year of lines traced by travel through the field⁸

could send a free “call-me” text to someone when they were out of credit⁷, Horst and Miller (2005) note that this too functioned within an established pattern of small favours requested and performed without the expectation that they would be reciprocated. Call me texts, like link-up, appeared autonomous from instrumentality and part of “a continual search for opportunities to expand the universe of connectedness in and of itself” (Horst and Miller, 2006). This pattern of reflexive connecting and then exploring the things revealed in connecting was no methodological innovation on my part or even savvy planning. I built on what I knew.

3.1.2 Moving from Between to Along

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⁷Digicel, the new carrier at the time, challenging the incumbent Cable and Wireless, also introduced per-second billing rather than per minute, which further incentivised the existing practice of quick link up calls

⁸Image generated from author’s personal data collection

These lines (fig. 3.5) trace a year of transit within and between The Valley, my adopted home, and The Island, my first, now made strange again through fieldwork. They emerge from a continually morphing dataset that includes not just my geographic location but other signals that I collected during my pursuit of self-knowledge through numbers. The lines connect both studies and connect multiple sites of tech development pursued in temperate and tropical locations.

As I put together this dissertation I struggled to find an appropriate arrival story. This was in part because I had not arrived, at least not in the storied fieldwork sense where only newly apprehends a site, or transitions from the outside in. I grew up in Jamaica, only leaving for what I thought would be a short stint for undergraduate study in the US. Between that last summer I spent as a full-fledged Jamaican resident and the most recent one I spent as a field researcher in 2014, I arrived in Jamaica yearly, with only two exceptions. Each arrival was a marker for shifts in my life, the country, and the relationship between them.

In December of 1998, I was on an F1 student visa. By December 2003, I had graduated, moved to California, and was on an H1B visa sponsored by my employer, Microsoft. By my Christmas visit in 2012, I held a Permanent Resident card and my lie that I was only visiting the US for 11 months each year had worn thin.

During my roughly nine months on the island, these arrivals continued. I made trips back to California and to Toronto, New York, Amsterdam, and Oxford for conferences. At first I felt that these trips were an abandonment of the field and my work. In truth, they mimicked and traced the trips many of my informants were themselves taking as they attended their own conferences and were celebrated as entrepreneurs from unlikely places.

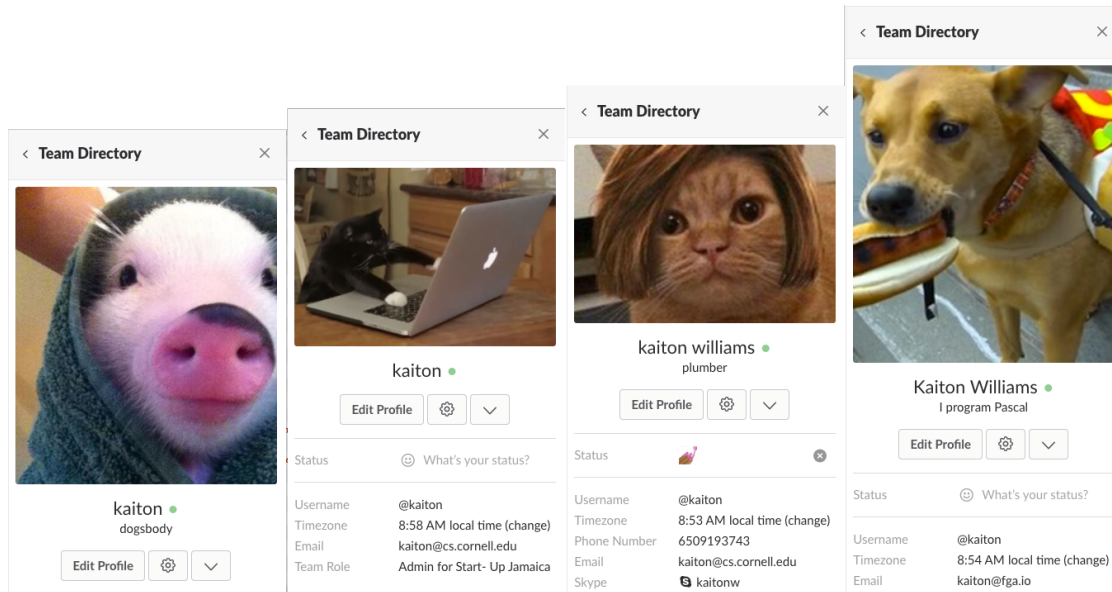


Figure 3.6: My profiles from various team chat apps

Since returning to California, I kept in close connection with many of them, continuing to partner together, though now primarily over chat apps. And several of my informants have made trips to the Bay Area where I would meet them, extending my field work and field site beyond the country's borders and those nine months. These lines track long talks and vital checkins held, on the go, through Kingston and San Francisco. They connect all my roles in, and outside of, the field.

How should I frame all these points of connection — these little chat windows (fig. 3.6) into other's worlds? The map view (fig. 3.5) suggests a network. Dealing with similar spatial and temporal complexities in her study of internet use in Ghana, Burrell (2009), drawing on work from Marcus (1995) and Strathern (1996), defined her field site as a network "composed of fixed and moving points including spaces, people, and objects" (Burrell, 2009, p. 189), thus eliding the imprecision of broad, territorial boundaries that were ill-suited for containing the institutions, places and people that influenced internet use in Accra. Following this, as a network, my field site could stretch across sites

in Jamaica and California, containing online and offline spaces and helping alleviate my tension about when, where, and who I was “in the field”.

Ingold, however, argues that this common network model depends on an inversion, where each element is “turned in upon itself prior to its integration into the network” (2011, p. 70). The network model paints people and places as points, and lines as the relations between them. Instead, he suggests an alternative structure that would reject the network’s key distinction between things and their relations wherein people “are not so much nodes in a network as knots in a tissue of knots, whose constituent strands, as they become tied up with other strands, in other knots, comprise _the meshwork” (Ingold, 2011, p. 70).

“Things”, Ingold argues, “are their relations.” This restructures inquiry from relations *between* to relations *along* enmeshed ways of life. This knotting together—a progressive intermeshing rather than points of connection between distinct and separable points—reflects that I was always somewhat in California, even in Jamaica; always an engineer, even as an ethnographer; always skeptical about digital’s technology potential, even while trying to capture it myself. Shifting from *between* to *along* underscored the intra-action (Barad, 1998) and mutual constitution of these teams and myself. My presence was as fundamental a part of their journeys—reflected in my place in their pitch decks—just as their journeys were essential to the construction of my research and to my renewed relationship with Jamaica.

But *building with* and shifting to *along* raised the spectre of “going native”: the putative danger for an ethnographer to become too involved in the community under inquiry and thus lose the requisite distance for objective analysis. The ethnographic researcher is expected to be both external observer and a somewhat native but pre-existing nativity however is treated differently than the nativity achieved in the field—

the achievement on which ethnographic authority has traditionally hung (Bunzl, 2004). This has long haunted researchers from the communities they study, positioning them as a native first and an ethnographer second, and their work as less valid or virtual (Weston, 1997). This, as Weston continues, denies the native ethnographer “the option of representing herself as a complex, integrated, compound figure” (Weston, 1997, p. 171).

As both the product and subject of anthropological fieldwork much like my own, I was sensitive about the idea of pursuing research in Jamaica, particularly as “morning sport”, and I remain watchful for people’s reactions when I tell them I am Jamaican and studying Jamaica. It felt clear to me that this made the work somehow less valuable than if a non-Jamaican, and a non-black person at that, had performed it. Is it that it would be considered a vacation? Was it that because I had some familiarity — had not arrived in the storied sense — I would have avoided the tropes of initiating myself into the field and winning over research subjects to my side?

Working from a Black feminist and a Caribbean perspective, Slocum (2001), Harrison (1997), Bolles (2001), and Ulysse (2007) have all examined how researchers of colour have interrogated these questions and embraced nativity to argue that being inside a region or community can provide valuable insights. As a Black Haitian, Ulysse (2007), reflects on how this affected her work on the self-making practices of Informal Commercial Importers in Jamaica:

“My specific social location informs the processes I undergo to gather data. Since ethnography is premised upon methodologically driven data collection, the native ethnographer is viewed as having an advantage because this individual already knows local ways, and thus has easy access. While this notion has been textually defeated, it continues to undergird anthropological practices...In principle, fieldwork is about collecting, a vestige of

its imperialist past, which often entailed grueling processes of negotiations between researchers and their subjects to gain information. Hence, having easy access to material raises fundamental questions about constructions of the field, the fieldworker, and the making of ethnography. The implication is that the native ethnographer does not have to work as hard" (Ulysse, 2007, pp 109)

Working to destabilise this idea of the native altogether, Narayan (1993), deconstructs nativity as constraining, arguing that the distance between us and those we study varies more with context than it does ethnicity or geography. In this view, achieved closeness through long-term interaction can be more valid and may provide greater insights than closeness conferred by birth. Everyone, in this formulation can be native in some way.

And the native as an internally homogenous category seems absurd. Even if I could say, in some stable way, that I was a native, what does it mean to possess local knowledge? Can there be local knowledge when there are multiple locals, and multiple knowledges (Haraway, 1988)? Even as a fellow Jamaican, there were profound differences between the developers I worked with and myself, not all of which could be attributed to my time away.

My informants straddled many ideologies and cultures. Like many other Jamaicans, they are informed by American TV and media. They also are plugged into a world of tech development and into The Valley's culture—in many ways more so than I might be, even as a permanent resident. Despite being closer geographically, I often felt philosophically remote. And even though we travel in the same circuits between California and the Caribbean, we often have opposing perspectives, just as we moved in different geographical directions in that flow. As Narayan goes on to note: "class and other

differences increasingly widen the divide and purported shared experiences between native subjects and researchers; moreover, these native scholars are often trained elsewhere, in universities in the North, away from their sites of research” (Narayan, 1993, p. 677).

My time in Jamaica was a continuation of an ongoing process of identity negotiation. Going back to Jamaica intensified this and set up other, unexpected contrasts. How I dressed, where I lived, how I looked, and even what computing choices I made — that I carried an iPhone and not an Android — were all part of the symbolic politics of my identity that generated debate and conflict with my fellow “native” informants and diffracted any notion of a stable native category.

But there’s more about nativity than a claim to local knowledge and field mobility. The viability of a deconstruction of nativity hinges on gatekeeping and power structures beyond the individual ethnographer. Weston argues that the desire to deconstruct nativity risks “glossing over the power relations that historically have marked particular people as particular sorts of hybrids” (Weston, 1997, p. 182). Not everyone has control of their definition.

Looking native, seeking to be native, and declaring myself as such, had consequences. The question of nativity remains a “fulcrum of power, identity, and authority issues” (Ulysse, 2007, pp. 107–108). As Slocum (2001) points out, there are also political reasons we might have for choosing to make parts of our identity relevant and seen at any moment: reasons, in my case, for choosing to be seen as a Jamaican or an engineer, an entrepreneur or an ethnographer, and black rather than biracial or creole. She argues that no matter how socially constructed, our identity traits have implications for the people we study, for how we perform that inquiry, and for the communities with which we align ourselves.

Intentionally building on a platform of nativity is rife with complications. But this is a knottiness that my informants share in their own journeys. Explicitly building on a platform of identification as Jamaican, as black, and as engineer became a way to jointly explore the consequences of that declaration for myself and for them.

A joint exploration

Reflecting on Weston's and Narayan's contributions, Bunzl (2004) argues that while these focuses on hybridity and political choices might resolve some of the tensions around native anthropology, even the most radical attempts to rethink the concept of "native ethnography" have fallen short of deconstructing the foundational Self—Other divide of fieldwork that produces the native anthropologist as a virtual member of the discipline. His suggestion is a recuperation of Boasian fieldwork that, instead of resting on that distinction, "refigures the question of Otherness in terms of *temporal* rather than cultural alterity" (2004, p. 437, emphasis mine). In this perspective neither informant or researcher have access to this history, and are united in shared relative epistemic position. This approach, he argues, does not deny cultural difference but tries to suspend its performative naturalisation as the constitutive element of fieldwork.

Shifting from between to along emphasised routes over roots (Hall, 1999). For example, at first, my self-tracking work felt different from my work within the Jamaican tech community. It was drawn around the practices and tools of the Quantified Self (Lupton, 2016; Crawford, Lingel, and Karppi, 2015) and that discourse seemed largely driven by, and focused on, white, metropolitan, and western concerns, not largely black and post-colonial conditions. Further, as an autoethnographic exercise, the scale and orientation were also markedly different: focused inwards instead of out, directed at my own experience rather than at those of others or at national outcomes.

Over the years, I developed strategies for managing the transition between the two projects and between my lives in California & Jamaica. When I traveled to conferences along lines traced in fig. 3.5, I would hold one project as an aside as I presented work from the other. Similarly, to ensure that I was always driving on the correct side of the road and operating the turn signals instead of the windshield wipers, I developed a system in which I would steer only with my left hand in the US and only with my right in Jamaica.

This uneasy ambidexterity and management of here vs there, and the requirements of life in yard and abroad,⁹ provided a commonality beyond passports or even technical capability. The developers I worked with juggled the demands of day to day life in Jamaica and the requirements of building software and services for the global market, all while making their own trips to the San Francisco Bay Area and to other startup hubs across the globe.

Across the Jamaican tech ecosystem, products and new subjectivities are being forged in tandem. I attempted to attend to the journey of these entrepreneurs through a research approach steeped in my own hope for sociotechnical mobility. One hope of many, is that through a sensitivity to technology and its possibilities, we could both make conduits across borders of nation, history, and flesh to new approaches to life and new forms of knowledge. For us all, new products and methods promise to provide answers to questions the island's inhabitants have had for hundreds of years.

⁹In Jamaican patois, yard refers metonymically to both one's house and the entire island. To be "back a yard" was to be back on the island, as opposed to "inna foreign" or abroad.

Joint Complications

When the police had pulled me over a few nights before I was to end fieldwork, it was after midnight and the highway was deserted. Despite the desolation, I thought little about my safety as I turned off the engine. I was in my own country after all. Instead I could think primarily about the ethnographic possibilities of the moment.

Two days and three thousand miles later, I was back in Oakland and I would no longer have that assurance, despite the immigration officer's earlier cordial "welcome home". In Jamaica, blackness, though a troubled and historically fraught category, is not exceptional in the same way it is in the United States. The police in Jamaica are largely black. I am largely black. Our lives are both understood to matter.

There is a more complicated truth, however. Black Jamaicans, that is to say darker-skinned Jamaicans, have their troubles with the police. And despite being a significant majority of the population, their social mobility has significant limits.

My parents are both black in this way. Due to genetic capriciousness, I am not. I am brown. Depending on audience and location, I can be red. I have also been white. But in Jamaica, I am never black. I belong in a separate racial, creole, category.

At a traffic stop in Jamaica, I rarely worry how I will be treated. I'm rarely stopped anywhere at all. Across the island, my presence is rarely questioned. My colour, American attire and California-inflected patois underwrites my unimpeded movement within spaces of wealth and privilege. Though we are all Jamaican, this is one of many ways in which my life differs significantly from many of the people in this study. To gloss myself simply as "native" ignores this reality.

Whether I like it or not, my colour places me in the upper echelons of the Jamaican racial and class order. In an island where the varied tapestry of blackness and its phenotypical unpredictability is on display, I am still frequently assumed to have one or both parents who are my colour or “higher” and to have been raised in the upper middle class traditions largely associated with Jamaicans of my complexion (Reid, 1980). Race in Jamaica is largely defined socially, and “brown” is both phenotype and a way of life that signifies respectability and aspirations of it (Robotham, 2000; Thomas, 2004; Hall, 1977). Irksome as this assumption has often been, it has provided me with a useful passport & privilege that I could use to access spaces and start conversations on behalf of those with whom I worked.

3.2 Writing a travelogue and the politics of representation

Despite Jamaica’s reputation for disconnection, most of the conversations I had with my informants took place online, and largely through text. The island’s infrastructural challenges can prove difficult to overcome for young upcoming entrepreneurs who largely do not own a car. Further, many, if not all, worked on their projects on a part time basis. When they weren’t working on their projects, they were at an office job or hustling between gigs to make a living. And even though the community is relatively small, aside from monthly meetups or ecosystem events, there is no single site that members flowed through regularly.

As a result, I often conducted interviews, “hung out”, and collaborated in a variety of third spaces or often while on the go. This made traditionally situated participant observation difficult, if not impossible. Instead, my phone and my car were crucial

¹⁰From personal image archive



Figure 3.7: SIM cards to keep me connected across several countries and networks¹⁰

elements in my fieldwork, offering transportation and translation; recording locations, images, and field notes; and allowing simultaneous access to a range of locations, online and off.

Straightforwardly, I wanted to represent this mobility and how it shaped my thinking. There are other critical mobilities and aspirations of mobilities that also shaped life for myself and my participants: geographical, technological and socio-economic mobility. Our roots and routes weren't always the same but our ethnographic and entrepreneurial journeys were both, drawing again on Ingold (2007), a form of wayfaring. As Vannini (2015) suggests:

“ethnographic journeys are not planned transitions from the office to the field site but wanderings through which movement speaks. These wanderings are also wonderings which seek out the interweaving storylines binding self, others, places, and times — lines which, just like ethnographic travel, are dynamic, unpredictable, with no clear roots or obvious boundaries or ends.”

The challenge of making a narrative that evoked rather than strictly represented the variety of people, scenes, and sites, introduced me to non-representational theory (Lorimer, 2005; Thrift, 2007). It spoke to my concerns about the fraught lines around the representations of The Island and of black life. Where realist ethnographers might position their representations as faithful renditions, a non-representational approach would rely on impressionistic cues to animate, rupture and evoke, rather than mimic, account, or report (Vannini, 2015). Following that form, my goal is to go beyond an attempt to “uncover meanings and values that apparently await our discovery, interpretation, judgement and ultimate representation” (Vannini, 2015, pp. 318).

My interest in ineffable experience and representation also arose from my already reflexive position as an ethnographer, the increasing attendance I paid to my own body as a result of my self-tracking project and dealing with illnesses, and the experiences of my informants and our shared sense of the rising tide of concern for black presents and futures. Non-representational theory’s emphasis on felt experience seemed vital to relating this connection to you, the reader. It felt vital because of the racialised experiences my informants go through and how “evidence” is requested from them to prove their experiences, or marshalled to invalidate them.

Rather than engage in a competition of facts, my goal is to evoke the feelings of these journeys and the rich interior life of possibilities those lines of code or sketches

on a screen represented for the people I worked with, and for myself as well. I first got online in 1996 via a 33.6k modem and the screeches and warbles that defined dialup then were more than just noises. They signalled the continuation of a process of wayfaring, signposted instead by underlined links and login prompts. Today, those seams are made with more deft hands but if software is indeed eating the world, it is enlarging the scope of what's possible to do from those lines of code, and has increased these intersections between the imagined and the actual, making non-representational accounts all the more vital.

Together, my informants and I moved between online and off, and among mobile apps and desktop programs. The accounts here are built from encounters across a wide variety of contexts and materialities, and I've tried to reassemble that here from fragments of chats, in person observations and interviews, GPS records, social media excerpts, and dives into my own memory, to name a few. Using multi-modal approaches borrowed from non-representational theory helps me evoke this world as imaginatively encountered without over-attending, when not needed, to the material through which we were connected.

Take the ethnographic interview as an example. Largely, it is still imagined to take place in person, where the skilled observer can absorb the rich variety of secondary cues that personal interaction, or even video chat or voice, provides¹¹. Much of the communication and insight arrived across this project was obtained via text messages exchanged via WhatsApp and Slack — a seemingly lower-bandwidth connection. Yet, this continuous current of conversation allowed a wide ranging discussion.

For many of my participants, the interview was an awkward construct but the WhatsApp chat, when convened around the same topics, was not. These chats made

¹¹This emphasis on thick description disadvantages the ethnographer who hasn't developed these sensibilities or prejudices us against settings and subjects that do not quickly yield evocative descriptions

spaces that were commensurate with, if not occasionally richer than, the “real”, high-bandwidth world. I take as natural, and therefore not always notable, that a conversation may have begun in person or on a Google Hangouts video session, continued onto WhatsApp, and stretched over days.

But this is not to say that what I have attempting here is to give you a “true” and authentic account, aided by my nativity or any technological affordance. As I’ve laid out in earlier sections, my knowledge, however established and communicated, is just one of many. My hope is build on nativity but destabilise authority and give life to competing impressions (Vannini, 2015; Lorimer, 2005). As I discuss in the closing chapter, I might have known, and been certain of, other things had I taken different routes.

Finally, while I am always committed to my own self-exploration and the confessional, many of my informants, and those who support them, are not used to the kinds of personal revelations that can accompany thick representative ethnographical detail. This is another reason to embrace non-representational strategies. The entrepreneurs here are busy at work presenting themselves to a world of potential competitors, investors, and customers. This involves a staggering amount of self-confidence and bravado. Particularly when read through concerns of racial disparity, the entrepreneurial journey does not allow them to indulge in what one of my informants referred to as “a narrative of doubt”.

The life of these entrepreneurs is always on and there are few moments when they allow this public face to slip. While many profess a desire to speak openly and publicly about the challenges of building their products and companies, few do, and I must consider, even if they don’t, what complications might result from easily connecting elements of our back channel or backstage discussions to that public presentation. At the time of publication of this document, many of them will be fund-raising. Although this

document is not yet public, and may not be searchable, I have taken care so that internet searches for their real names and products do not connect¹² with what I've revealed here or in a future document, and thus possibly harm their livelihood.

This is not a thorough scrubbing. The Jamaican tech community is quite small. I am a public figure. My association with these startups is a matter of common, and often corporate, record. My main concern is that they cannot be traced easily, not completely.

3.2.1 Discursive and speculative launching points

Interlinked with my focus on mobilities and their representation, speeches and scenes set at speeches are a second motif. I could not escape them: big talk, big visions, and big claims by government officials, entrepreneurs, NGO staff and assorted industry supporters. It was tempting to try and assess these as truth claims. As someone who still, on occasion, claims the engineer title for himself, it is still difficult to avoid assessing whether or not some idea will succeed, if some claim for the future is possible, and if a newly announced service or app is built correctly.

But it has been far more productive for me to take these words, not as attempts at truth to be debunked, but as acts that conjure worlds in the future and structure action and thought in the present. As Li's "The Will to Improve" (2007) lays out, my goal is to draw attention to the lines and disjunctions between hope, attempt, and accomplishment, which, rather than only underscoring a cruel optimism (Berlant, 2006), directs our attention to the ongoing, never-ending, work of becoming (Biehl and Locke, 2010) and how belief can authorise powerful transformations for our selves and others (Despret, 2004).

¹²The choice to make, or break, the connection remain theirs to manage through the use of hyperlinks.

Drawing from approaches like this, and hewing to my concern for mobility, I use the speeches as points of discursive departure into the bodies of literature and methods of inquiry needed to tease out what these utterances conjure into being. Caribbean fiction and music offer in particular offer a source of vernacular meaning that highlights the importance of the imaginary and the lyrical in understanding the purpose and power of these speeches, claims, and attempts. These discursions allow me to manoeuvre in time and space and connect what would otherwise be disconnected.

This applies not just to speeches but other instances of story-telling and self-narration. One of my strategies here is to incorporate my informants' public statements within accounts built from in-person interviews and participation, with the full knowledge that there is a distinction between the marketing of self as done for the web and an imagined public and what they may say in a conversation with me. This "front stage" management (Goffman, 1959) is an escapable part of the entrepreneurial journey, where impressions of success and failure need to be managed as part of a joint exercise of promoting self and product. The stark difference between vulnerability and confidence presented in public interviews and our private conversations speaks to the challenges entrepreneurs face to present themselves as always capable and knowledgeable. That said, I do not take what said to me in person as necessarily more true than what's said within the context of a newspaper interview. Backstage or front stage, these are all parts of the process of self-making and ontological narration.

3.3 Conclusion

The Caribbean is a place I care deeply about as a citizen and as a technologist. Going "back" to Jamaica has helped me develop and think through my relationship to my

country, my discipline, and my research methods. I believe that native work in this vein can offer new attentions and insights for the places and people we care about and for HCI itself.

To support these projects we need to challenge the disciplinary forms of legitimacy and legibility that stifle those voices and reduces their urgency by depicting them as hamstrung by subjective bias, overwrought with emotion, and weighed down by their connections to the places they (could) write about (Bellacasa, 2011). We are all natives to some place or some practice, but the political valence assigned to those bonds is often the result of a reflexive defence of the objective neutral position of a white, Western researcher and oppresses the perspective of those who live outside those borders. This denudes native contributions and ethnographic accountings of their epistemological potential (Dourish, 2006). Attending more carefully to how, and why, we construct and maintain various kinds of natives, including researchers in our community, can only help in HCI's larger project of supporting design in more contexts.

Finally, I went to Jamaica while pursuing a second research project on self-tracking. While I was diving deeply in to the lives of others, I was learning more about my self: fasting intermittently, exercising ardently, and tracking my body comprehensively. Attending to my body and its ongoing transformations while conducting research in startup spaces helped me find new perspectives. It helped me know differently. I learned that listening to and taking care of your self can help develop the ability to listen to and care for others (Lorde, 1984).

I learned a perhaps obvious insight. This is what ethnography is about: "the deployment of the fieldworker's body as a living, physical, sensing, and experiencing agent enmeshed in practical and intimate encounter" (Retsikas, 2008, p. 127). Despret (2004) argues that our bodies reside in an "ambiguous sphere of being": we are, at times, in the

world of objects — the world out there— and at other times, in the world of subjects — the world inside. Accordingly, our body is both “the object to know” and the “knowing subject”.

Developing a caring relationship for my country and my body became a means for creating other affective relations that produced new knowledge. It provided me with new ways of collecting data, new sensitivities and new capabilities that helped me understand others. This caring underwrote vital transformations in my personal and professional life, producing “new articulations” (Despret, 2004) that allowed me to listen differently, and authorised my informants to speak differently about their own transformations and relations.

CHAPTER 4

PROPER ENTREPRENEURS?

In this chapter I examine debates on proper forms of entrepreneurship undertaken from several perspectives across two business events on the same day. I show how these evaluations are being shaped by the new opportunities and demands of becoming legible to Silicon Valley and by a long-seated dualism in Caribbean culture on along a distinction between respectable (middle class) practices and reputational lines. While technical capability is an important part of this debate, I emphasise how the conversations concern how to comport oneself within narrow lines that define innovation, “cultural fit”, and value. Startup culture debates and the demands of life in a neoliberal value system multiply and intertwine these lines, producing new opportunities but also new sources of friction. Critically, I position tech entrepreneurs as living within a margin within a margin. They identify a range of local practices as underdeveloped, yet they are similarly marked, by different means, as underdeveloped from the perspective of the Valley.

4.1 All Protocols Observed

Today, July 3rd, I begin my day at the Pegasus Hotel for the annual Economic Forum held by the Private Sector Organisation of Jamaica (PSOJ), an association established in the mid 1970s to promote business interests during the country’s decade of democratic socialism. The PSOJ forum is not the kind of place where I have spent most of my days thus far but I am a guest of an old friend, who has been my local fixer this year and almost every year since 1998. Now that I am back in country, I accompany him to meetings or on trips around town whenever I have some free time. He is well connected

in the business community, and on these outings I get to tie names to faces and rub shoulders with the country's elite business owners and families.

These events form the backbone of a set of practices that many of my informants position themselves against. For them, the PSOJ event is a site for the rehearsal of outdated ideas for how to run a business. It is a place where the attendees would be more concerned with style and formality over substance.

This year, the forum's theme is "Fuelling SMEs¹ in Supporting Economic Development: What's Your Role?" Julian Robinson, the Minister of State for Science, Technology, Energy and Mining, a frequent presence in all things tech and entrepreneurial, is a speaker here. He uses his time to provide more information on the Start-Up Jamaica (SUJ) effort that was announced there and would now be taking applications for its first cohort. The PSOJ audience is hardly the typical tech entrepreneurial startup sort that I have seen at the island's tech events — they are far older, and few if any, are involved in internet-dependent businesses — but they too are encouraged to submit an application at the newly launched SUJ site by describing their product idea in 140 characters or less.

His speech is followed by a Panel Discussion on "Best Practices for SME/Entrepreneur Development". Panelists from the local entrepreneurial ecosystem present a range of topics. Stephen Steele, the CEO of iPrint Digital, presents "Challenges Facing Start Ups: The Entrepreneurial Experience". Lisa Lake, the Chief Entrepreneurship Officer of the Branson Centre of Entrepreneurship (Caribbean) addresses "The Path to Growth and Development". Michael Steele, Head of the Joan Duncan School of Entrepreneurship, Ethics and Leadership (JDSEEL) speaks on "Entrepreneurship Research in Jamaica". Jenson Sylvester the Director of Government and Strategic Accounts at Columbus Business Solutions, a division of one the largest telecommunications carriers in the region,

¹Small and Medium Sized Enterprises

addresses “Helping SMEs to Enhance Their Communication”. Finally, Edison Galbraith, the General Manager of Loan Origination and Portfolio Management at the Development Bank of Jamaica (DBJ) speaks about “Available Funding for SMEs”. The lights in the windowless banquet hall are dimmed for the projected slides, and the panel is a subdued affair with charts and little audience engagement. I struggle to stay awake.

The closing keynote is given by JJ Geewax, another returning face from Digital Jam, where he was a judge. JJ, who had been an executive at startup acquired by Google, launched a small incubator, JGX Labs, in 2013 and has since been a significant figure in coverage of the island’s nascent startup community. In a newspaper interview (Richardson, 2013), he explains that, he had been ‘coming down’ frequently in the last decade, beginning vacations to the scenic north coast with a Jamaican family friend during undergraduate study. After several of these trips, he found software development talent at a hackathon on the UWI campus and launched the lab on the proposition that high quality software development could be done in Jamaica at low cost and then exported as online services for use globally:

“We want to keep the money to a minimum because we want people to focus on being creative and make sure they are not wasting time figuring out how to spend the money...At the very beginning, I think that you need technical people who know how to build software. I don’t mean experts who have 10 years of experience, but fresh college grads who understand the fundamentals of building any form of web applications”² (Richardson, 2013).

²The article continues: “said the tech expert, who himself has a bachelor’s degree in Computer Science from the University of Pennsylvania”. I’m not sure if this was meant to be snark, praise, or merely background detail.

JJ's speech was a reflection on the experience gained from those small investments but it was also about the difference between entrepreneurship in Jamaica and in the US, particularly around attitudes toward failure. The investments he had made were an experiment. He would simply fund some ventures and see what happened. As he argued in his speech:

[W]e have no idea if the companies we're investing in are the right ones. No idea. It could be completely wrong. But that's ok. I can say that they're definitely, y'know, umm, if we didn't try, we'll never find out if they were the right ones in the first place. And I'm perfectly comfortable to do this. And, just, if they fail they fail.

This last statement garners him tremendous applause from audience. He continues:

So, that said, right, *if*³ it doesn't work out, I think one of the best ways to learn is by making a mistake... That's how I love to learn. So if we make an investment, and it doesn't work, we're gonna figure out what broke and try again. That's pretty straightforward ... So, but this brings me to kind of an important point...the fear of failure: being afraid to try something because it might not work out. I think that in the [earlier] presentation [by Lisa Lake, on "The Path to Growth and Development"] actually said that fear of failure wasn't really that high and I think that she had in parentheses there "or confidence is so high that they didn't think it was an option". I saw a lot more of column B where people were just like "No, it'll definitely work"... And that's not bad, y'know? Optimism is a good thing. It makes us take

³I've tried to replicate his notes of emphasis from the speech. I've also removed breaks and disfluencies as much as possible, retaining those that I think meaningfully inform the surrounding text

really big steps and hopefully they'll work out. But I think recognising that it's ok if it doesn't work out perfectly, that's incredibly important. But I'm a little worried because I don't see a whole lot of that here.

JJ pivots to assessing the state of tech entrepreneurship, circa 2014:

In the States, people come up with ridiculous ideas: Flappy Birds, and the Yo app⁴, and all these crazy things. And you hear about all the ones that worked out amazingly well. You don't hear about the 10,000 of them that somebody wrote it and it went in the garbage ten minutes later. Because they're OK with that; they just throw it in the garbage.

So I'm worried because when you do try something it seems as if there's this Game Over. It's like playing Mario with one life. That's no fun. [Laughter from audience]

At this point, JJ retells the story of Invite Media, his earlier company. While this is his story of failure, his point isn't just about being open to failure. It's about something wider:

We do need to make decisions with the long term in mind. And I think until we start doing that we're gonna be in some trouble. It's pretty tricky. It's not just investing in your people, it's deciding what your business will look like. A good example here is say we were to invest \$10,000 US in some

⁴It's not clear if he was making fun of Yo: an app through which its users could only exchange simple "Yo" messages. Launched in April of 2014, it received over \$5M USD in funding and quickly became a symbol of Silicon Valley excess. However, as of 2017 the company is still in business and they've expanded functionality beyond sending "Yo".

company — similar to what Startup Jamaica will be doing, that's \$14,000. They could take a guaranteed salary of \$2,000 US a month for 5–7 months and they would be guaranteed to be out of money in that time. Or they could not take a salary at all and start paying the people who won't take equity or work pro bono, things like that. And then start taking your salary only after they start earning money.

And if you look at that, I would present that to some people here and the typical response was “Oh I have bills so I have to be first”...I took a zero dollar salary for a whole year because we were low on money. Totally worth it in the end because we traded for equity. But that's what *these* kids are *not* doing. I don't see a lot of sacrifice and saying “it's ok that it's not glamorous”. There's this whole idea that this has to be fun, this has to be one big party. It's really not fun, until later. When you sell a company to Google then it gets fun. Then things are awesome. [Audience laughter]

But until then you're kinda like “uh-oh. Are we gonna run out of money tomorrow? I'm not sure.” “Will we be able to make payroll” Who knows? That's a struggle but it's a *fun* struggle. So if you love that kind of thing, if you love the pressure and the challenge, then it's perfect. But if you're somebody who really wants that like safe and steady job, which I feel like a lot of people here really are, there's nothing wrong with that, I'm just saying it's a different attitude. You end up in really unusual situations where they raise money to do their startup but they're treating it like it's their day job. And those don't work. *You gotta pick one.*

And it's fine to pick this [referring to the PSOJ and the assembled audience]. It's fine to have a day job. I don't think there's anything wrong with that. I prefer this side...But if you're going to do down that path, you need to go down that path.

But JJ's concern is more than money management or multiple career tracks. It's also about the business of Jamaican business and what he sees as the island's materialistic culture:

I think the other part, and well, this brings me to another major concern I have. Well, let me start with an example. Anybody who knows me knows that this is not how I dress. I was told to wear a suit. I did not wear a suit. I'm sorry.⁵ But I usually wear jeans and slippers and a t-shirt. Usually not even a very nice t-shirt: costs about \$7. People thought I was crazy when I first came here. Because there seems to be this huge attachment to image and flashiness.

At this point JJ is interrupted by hearty applause and knocking of tables by people dressed in suits and flashy clothing.

But what happened was, wearing a suit right now, I think it would be kind of hypocritical to then say what I'm about to say, which is I feel like *we* are so concerned about image and appearance that we get to the point where we aren't thinking about most important for our business. It really doesn't

⁵JJ's wearing a grey dress shirt, black slacks and shoes. His is also clearly not sorry. However, I am in no position to judge. I also, am not in a suit. I am even more casually dressed in a short-sleeved henley and chinos. Like JJ, my light complexion and my American residence, even if partial, provide me with the ability to be taken seriously in more formal business settings while dressed casually.

matter to me what you're wearing. If somebody walks in a suit, I actually kind of judge them a little bit but that's—I'm in tech where the worse you look the smarter they think you are. That's just me. In general though, we need to stop caring what people look like and focus more on results.

He continues:

So part of this appearance thing leads to another set of unusual circumstances which is if you look at people with iPhones...I make the *crazy* assumption that people with iPhones had internet on their iPhone. [Crowd laughs] Yea..No Idea. Apparently, if there's 10 people with an iPhone, maybe one of them has a data plan. They've spent all this money on an iPhone to only be able to use it at home [inaudible]. I just find that crazy because I'm here like planning out "like ok what are the iPhone sales like, so this how many people would use the app". No, no, not nearly close: one in ten. So if I take a zero off that's how many people will be able to use the app.

But that's crazy. It leads to other things like everybody with Louis Vuitton bags running around like 'oh man I don't have enough money for gas.' It's a problem.... Would you be doing the same thing you're doing now if that was how the world worked [if we were all given "like \$10M US a year"]? I can tell you I'd totally be writing code right now, no question about it. My friends, you can ask them, they hated it. They're like let's go out on Saturday and I'm like no, I'm home and I'm coding, leave me alone.

They think that I'm crazy but it's almost like, I can't imagine like Tessanne⁶ waking up, getting this deal, \$10M dollars a year, being like forget it I don't really want to sing anyway. Or Bolt⁷ being like, yea, I'm just tired of running, I'll just walk. It wouldn't make sense. They're gonna do what they do regardless of money.

You kinda think, would you be all flashy if everyone could afford the same thing? ... I think we'd wear sweatpants all the time. Wear shorts, whatever. I mean it's warm here right [grumbles rise up from the audience at this point]. It's actually crazy hot. But the point is, if you think about this, I think we'd act incredibly differently from what we do today. And that's what I'm looking for in a founder.

I want the person who wakes up every morning screaming "Good God, I need to do what I need to do on this business". The one who, when I say "Hey, let's go have drinks" who like "Nonononono, I don't have time. I'd love to but ...". That's what I'd like to find and that's what I'd invest in here. The problem is that I don't think *our* culture is very conducive to [inaudible: growing?] those types of people. I think they go through school and come up through primary and secondary and end up at [The University of the

⁶He's referring to Tessanne Chin, a Jamaican musician of Chinese descent who won Season 5 of NBC's The Voice reality program in December of 2013 and became a Caribbean and American phenomenon, if only briefly. See Prater (2015) for more details.

One of the many under-investigated threads I came across during my time in the field was the repeated rumour that Jamaicans across the diaspora used popular VOIP systems such as Google Voice and Skype MagicJack to disguise "local" calls as American ones and vote her into the finals.

⁷Usain Bolt needs little back story at this point. In my own travels, he has eclipsed Bob Marley as the Jamaican that immigration officers mention to me when I present my passport at the various entry posts around the world. Bolt, however, and quite notoriously, hates training, and chose the shorter sprints over the 400m event he began with in order to avoid the long running sessions (Kessel, 2009).

West Indies] and the most important thing is “Oh man, if there’s 12 of us we can get a booth at Fiction⁸ [or] Oh I need the new iPhone.”

“We expend inordinate amounts of money trying to look fancy”, JJ argues. “You can actually get loans to finance your carnival costume⁹. I cannot say that I understand that in the slightest.” This results in sustained murmurs from the hundred plus corporate Jamaicans in attendance. He continues: “They would buy a fancy car and get locked into these loan payments and I would ask why. I don’t feel that we ask why anymore. Nobody is asking why.”

4.1.1 Who is We?

“Who?” That’s what I wanted to ask. And what, exactly, was “our culture?” What did the audience make of all this? Judging by the many applause breaks, many people agreed. His rebuke was at the centre of the newspaper coverage of the event. “Business culture about posers not results — JJ Geewax” read the Daily Observer’s headline; “Jamaicans’ Love Of Flashiness Holding Back Business”, wrote The Gleaner.

I left the hotel that morning upset. Did visits for vacation, and business trips for his incubator provide JJ with insight and inclusion into “we” and “our” culture? Did his share of the USD \$81M acquisition, the resulting Google imprimatur, and perhaps his colour, also give him a passport to be taken seriously in this Jamaican debate? But then who was I to complain, if the local papers had not? He had likely spent more time in the country than I had over the last decade. He was more tightly knit into this

⁸A Kingston hotspot

⁹I have never heard of this in Jamaica nor can I find any mention of it. This does happen in Trinidad and Tobago but carnival in Jamaica is a far more subdued event and appeals to a much smaller demographic.

tech entrepreneurial community. He was a former entrepreneur himself, and, by all indications, a millionaire.

Still, his speech made me deeply uncomfortable. Perhaps it was because he was cheered on that his view was so discouraging. Much later, newly frustrated after transcribing it, I sent some of the text over WhatsApp to Naira¹⁰, one of the black female entrepreneurs I had been working with for several months:

[6:25 PM] Naira: well in the 1st note with the 'our culture' I got confused

[6:25 PM] Naira: but i figure that's the speaker's attempt to build a connection with the audience he's about to criticize

[6:26 PM] Naira: I don't know in what country black people [wear] jeans and tshirt and slippers to work in their company [or] s/o else's

[6:28 PM] Naira: and wouldn't be looked at a way, asked to show ID, or worse escorted out. island or mainland.

[6:28 PM] Naira: maybe where the speaker is from, and maybe in progressive pockets, but idk

[6:30 PM] Naira: but we've had a lot to make up for. my mother hates when I dress that like to work, she raised me to be (and look) successful

[6:32 PM] Naira: now that we catch up and start look nice white ppl turn round and say no, wear yard clothes¹¹ and make money. it's funny to me. I hate suits in this climate btw, so I not in dat needer¹²

¹⁰Naira is a pseudonym

¹¹In the island hierarchy of clothing, yard clothes or, as my mother would say, "drudging" clothes — stretched out and torn t-shirts, stained pants and shorts — are relegated strictly to the home and to be seen only by family and close friends:

¹²"Mi nuh inna dat" or "I'm not into that" is one of those wonderful Jamaican expressions with a range of meanings. Here, I take it to mean "that is not something I wish to be a part of" both specifically (the suits) and philosophically. Looking successful then, is not about wearing overly formal "business" clothing but it is not a dream in which one should wear a t-shirt to work either.

From where I sat, the speech represented a lack of curiosity into the world that local entrepreneurs must navigate without his mobility and privileges. He did not ask why “we” all don’t share the ability to give talks, make judgments, and pitch for dollars while dressed in slippers, jeans, and a \$7 t-shirt, yet still be taken seriously. It was a profound misunderstanding of the sociocultural differences between *his* New York, *his* idea of The Valley, and *this* Jamaica.

JJ’s speech identified a range of important issues that I, as another engineer, agreed with. My engagements with teams had revealed issues that might be diagnosed according to a similar logic. But wasting venture capital was not a uniquely Jamaican problem. It is doubtful that The Island could match The Valley’s excesses in this regard. Yes, there was a fear of failure. But where did this fear not exist? People in The Valley are afraid to fail. Caucasian American men who attend prestigious institutions are afraid to fail. Is there a special kind of fear in The Island from which The Valley would be immune?

If outcomes are different here than there, to borrow his own language, he had not cared to ask *why* he so readily assigned the fault to our culture. Nor did he consider the historical lineage of his argument. He didn’t inquire into how the costs of failure are unevenly applied across race and gender. He didn’t ask why some of us can fail up while others can only fall down (Losse, 2016; Fairlie and Robb, 2008).

This view claims to be both from nowhere — the global and neutral *we* — and here, the shared Jamaican *us*. His image of the engineer as the ideal hacker who lives in ideas and code and is unencumbered by cares for the material (Ensmenger, 2015) becomes a universal one in the speech. He expresses a longing for a world where we all dress the same — as we might, if, as he suggested, we had machines that made Rolexes for free — and where clothes don’t signify all that they do. But why should we, in such a world, want to dress like him?

THE ENGINEER

Looks like a hobo, but has the same agent as Major League Baseball players.

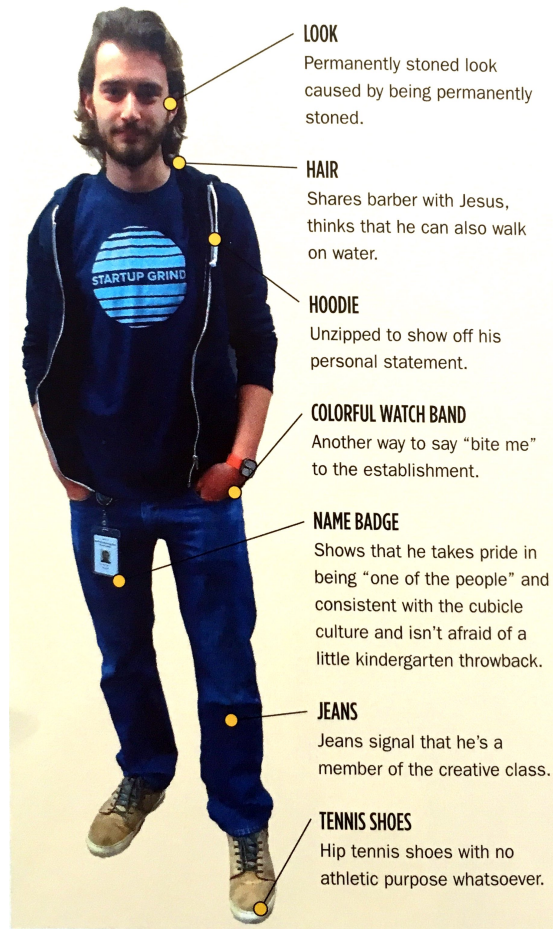


Figure 4.1: Image of "The Engineer", from Moe (2017), a somewhat tongue in cheek guide to global startups¹³

The speech makes perhaps a new for him, but old for many of us, connection between consumerism and black identity. The Vuitton bags he reports seeing are largely knock-offs but what if they weren't? Are they any less necessary and symbolically potent than a Google Glass? From this perspective, the iPhone without a data plan is only for vanity, and a stumbling block for the modelling of his prototype's possibilities. It

¹³The book, billed as "a fun, yet factual guide to thrive not only in Silicon Valley, but in the emerging Global Silicon Valley" was produced a leading venture capitalist in Silicon Valley and the staff at Global Silicon Valley, a leading asset management and venture capital investment firm.

was not an opportunity to inquire into the connections through which those phones were obtained or how to build product that applied to the patterns of segmented connection that are were, in actuality, the primary experience of the majority of mobile users across the world¹⁴.

4.2 Kingston, Beta

Later that evening, I returned to the Pegasus for the monthly Kingston Beta tech event. Minister Robinson is back as well, to share news on the Start-Up Jamaica initiative but to a more technical audience. So is JJ, this time with news on “First Angels” a Venture Capital fund that he launched in partnership with local investors.

Running in some form since 2007, Kingston Beta is billed as the hub of the island’s tech community and its oldest continuous meetup focused on tech startups and pitching. Like the PSOJ forum held a few hours earlier and few rooms over, it has its own protocols to be observed, though the format is looser and more informal. There are announcements. Then there is a guest speaker from industry or government. The focus then turns to the main event: a handful of pitches for new products and ventures. Finally, there is time for networking and drinks.

I was living in San Francisco when I first visited in Kingston Beta in 2011. It was held then in the aptly named “Talk of the Town” room on the hotel’s top floor. The mostly black faces in the room painted a markedly different scene from those I had become

¹⁴Based on comprehensive mapping of global network usage, Open Signal (2016) argues that Wifi has become a far more important mobile data technology than 3G or 4G across both the Global South and North. In the Netherlands, approximately 75% of the total connections were over Wifi networks, and in roughly half of the sample countries, smartphone users spent more than 50% of their time connected to Wifi networks.

¹⁵From personal email archive



Figure 4.2: Kingston Beta Flyer for July 3rd¹⁵

familiar with in the tech spaces of Northern California — inverted, poetically. Held then and now on Thursday evenings, attendees filter in after the end of their work day. Those not coming from work mostly dress in jeans. Those coming from the office wear the business casual attire of the island's 9–5 set: slacks or pencil skirts; shirts or blouses in bright silken colour blocs; smart shoes. Software engineers here, unlike in The Valley, largely cannot go to work in slippers, jeans, and a \$7 t-shirt.

Debates in the room and on simultaneously on twitter are rooted concerns familiar to a visitor from San Fransisco: business models, an upcoming hack weekend, finding customers, securing payment systems, and advertising dollars. But they branch and dip into local concerns. Collectively the room navigates a transnational cultural fit. A pitch

for a platform for viewing restaurant menus and making reservations is met with the question: “Are we really a reservation making culture here?” A new platform for music, Real VibeZ, kickstarts a conversation about how some of the island’s dancehall music, which will be excluded from the platform, hurts “Brand Jamaica” through its celebration of violence and “slackness” or lower-class values (H. N. Johnson, 2014; Cooper, 1995).

The pitches and responses to them offer insight into how The Valley is imagined from The Island. It also offers insight into how The Island appears from that vantage point of what it could be, if things, and people, worked more like they do in The Valley. From this vantage point, The Island’s cultural capital figures at times as burden and in other moments, often simultaneously, as opportunity. The call and response of the pitch environment, reflect an ambivalence about the island’s infrastructure, regulations, and socioeconomic capabilities and its identity as a laid-back destination for music, beaches, and ‘culture’.

Some pitches are for products that operationalise cultural capital to build music platforms, and to sell its culture to a large diaspora or its large tourist market. Other products challenged these categories altogether, resisting the use of local design tropes — colours, characters, and patois-inflected product names — and dismissing the local or diaspora market altogether. Many of these products seem to be directly built on, copied from, and in dialogue with, products being launched in The Valley and discussed in its tech media.

The dialogue presents a range of productive complications to JJ’s painting of the tech entrepreneur and engineer. This is a group of mostly black men who, in pitches, interviews, and casual talk, enshrine The Valley’s tech leaders. They embrace Zuckerberg, Bezos, and Musk not just for their financial success but also for their methods, which offer a stark break from “local” practices via an engineering-orientation and attention

to design. They not only want to do as well financially, they want to do it and be seen doing it in the same way.

In the years since my first visit, ambitions had followed the surging availability of new tech platforms, production capabilities and new markets. The visions presented in the pitches I was privy to sounded at first farfetched but then achievable: networks of 3D printers spanning the island; mobile payments systems that would replace the ubiquitous use of cash. In these pitches resided a “big talk”, that blended The Island’s reputational forms with The Valley’s bombast. A fleet of drones that would capture agricultural data for sale — a pitch I heard at several venues — did not seem impossible.

Yet, perhaps in acquiescence to what they see as necessary for forward motion in this pipeline between The Island, The Valley, and the world at large, they often work to fit in, not ruffle feathers. They are encouraged to play by rules they have been explicitly taught in these entrepreneurship programs, have read about in blogs and profiles, or have intuited and learned by example in rooms across The Island just like this one. But they cannot compete equally in this game. Some of the reasons can be clearly identified. They do not look the part in an industry where difference has only been celebrated within narrow parameters. This part of the world isn’t on the radar for their idols. Apple might register its trademarks here but it largely isn’t recruiting the island’s engineers (Wong and Groskopf, 2016).

Ideas are rejected by locals and foreign experts alike, based on what seem like objective criteria. The local market is too small. There is little precedent: no history of previous work or exemplars that risk-averse investors can use as a guide. Watching from the audience, there are also subtle factors: uses of dress, argot, poise, and tone that they cannot quite emulate but factor into what counts as a good culture fit and risk at home and abroad (Klein and Diaz-Hernandez, 2014).

They could break the rules. After all, the rules are to break the rules. But breaking the rules — asking for forgiveness, not permission — is not for everyone. For the “right people” working from the “right place”, failure and mistakes are a badge of honour and a step towards success. For those who fit the profile, previous escapades are celebrated as early signs of out of the box thinking, and incorporated into an entrepreneur mythos and narrative arc. Instead of “no angel” (Sullivan, 2014), we read about disruptive prodigies. For those who don’t fit the profile, those early escapades result in punishments that then block them from future successes (Levine and Rubinstein, 2016).

4.2.1 Entrepreneurship for you; hustling for me

I arrived at the Kingston Beta event late that night. I was at the UWI campus further uptown, teaching a class on mobile app development to a smaller, but somewhat similar, audience as part of the World Bank’s EPIC program. During breaks in the lecture, we chat about the newly revealed application process for SUJ, the kind of businesses these fledgeling tech entrepreneurs want to build, and what they think the accelerator will find valuable.

Admittance to SUJ incubator requires that at least one member of each team commit to being a full-time resident. This itself is a risk. Can they re-enter a regular 9–5 if the SUJ experience doesn’t work out as expected? This is a concern not just about their own likelihoods of success but that the incubator will even remain functional. This is Jamaica after all, and state promises often go unfulfilled. Trevor, who has several ventures underway at once, all while maintaining a day job, has a solution: “just sen a wasteman”.

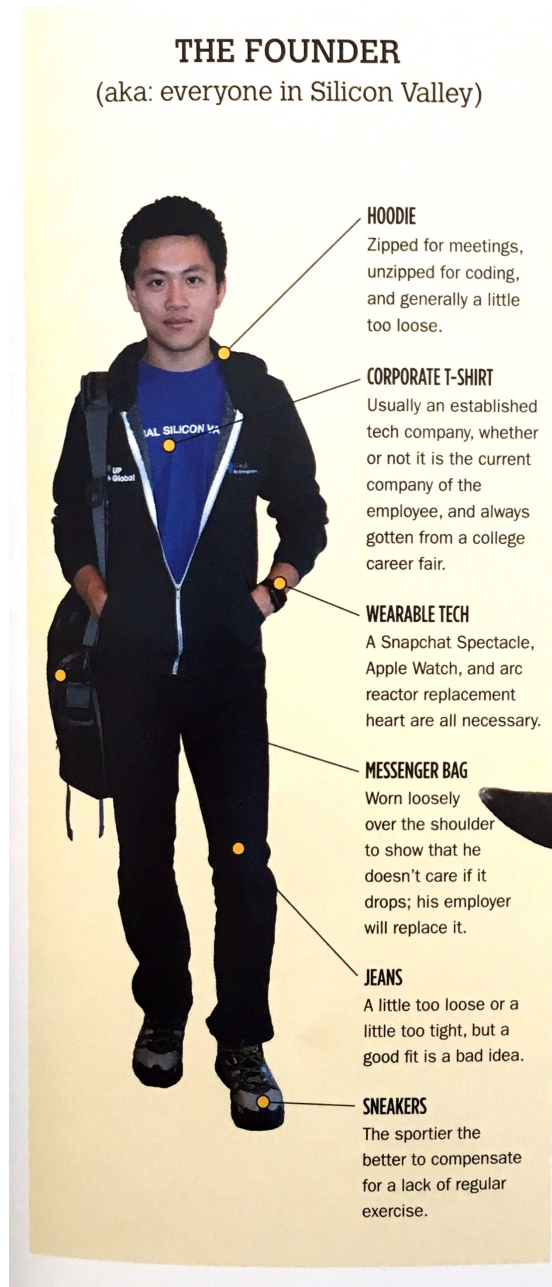


Figure 4.3: Image of "The Founder", from "The Global Silicon Valley Handbook" (2017)

It is difficult to find a coherent articulation of The Valley's ideal entrepreneurship against The Island's patterns of entrepreneurialism. Picking up the newspaper one morning, I read that Jamaicans are naturally entrepreneurial — *hustlers*. On another page, on another day, I read that they are not entrepreneurial or hard working enough: *wastemen*. A long-simmering local, and now international, scandal has revealed that we may be keenly entrepreneurial but in the wrong ways: *scammers* (Bourne et al., 2013; H. N. Johnson, 2014).

This ideal Valley entrepreneur, engineer, or founder (fig. 4.3, fig. 4.1) focuses on one idea, ideally enabled through venture funding. The Island's entrepreneurs work on their projects as one "hustle" of many, both as a survival strategy and to perform one identity of many (Comitas, 1964). But "hustling" can be easily freighted with class baggage, the sort that freshly-minted entrepreneurs must wrestle in order to embrace these globally circulating visions of the future — even though they're sidelined or missing in them.

In discussions with Pablo, the leader of one of the teams I work with, he notes the difference between what he has been doing and the work of other entrepreneurs or "hustlers" who don't pursue *proper* business practices that reflect a science — lean methods (Ries, 2011), regimented experimentation, thorough business models — and never look beyond the local market. In doing so he channels rhetoric that reinforces the neutral hegemonic position of The Valley's methods as universal, modern, rational and ready for international markets and scaling (Avle, Lindtner, and Williams, 2017).

It is also a reflection of an evolving distinction between respectable and reputational practices as identified by Wilson (1973) and productively extended and interrogated by later authors. Reputation, in this founding dynamic, is the "constellation of qualities by which [a man] achieves a place in the world of others where he is both an equal and

a unique person” and involves the display of skills, not necessarily economic, but also sexual, verbal, or musical (Wilson, 1973, p. 152). Respectability, on the other hand, is a set of ideals and a complex of moral codes and values against which social practice is judged. Formal marriage and education, religion, cleanliness and orderliness, modesty, manners, and sexual propriety are key dimensions in this pursuit. Reputation has been thought to embody what is most authentic and most admirable in Caribbean culture due to its potential to reject the hierarchy and domination of colonialism, while respectability has been seen as the essence of false consciousness and the reproduction of colonial oppression (Freeman, 2007; Wardle, 2007; Austin, 1983).

Following this reading, one might identify this negative, “hustling”, evaluation of informal entrepreneurship as a reputational practice, while the largely middle class startup entrepreneurs that populate the upper echelon of the nation’s tech scene, would represent respectable practices. However, Pablo and others in the room also identify the distinctively middle class business protocols at the earlier PSOJ event in a negative light: too formal, too slow, too inflexible.

This draws focus to the intersection of two systems of flexibility. One system of flexibility is grounded in the mores of reputation, its oppositional politics, and its “supple capacity for creative self-invention and self-mastery” (Freeman, 2007, p. 252). The other, Freeman argues, is rooted in neoliberal requirements for fluidity and the resulting restructuring of labor, capital, and information. Freeman shows that while these two forms of flexibility might be grounded in opposite logic, the practices and ideologies are converging, and reputational strategies are proving vital to the success of middle-class entrepreneurs in a global marketplace. These qualities — individualism, inventiveness, and adaptability — were once positioned against the cultural and economic establish-

ment but are now increasingly central to the mandates of the mainstream global economy.

In her (2014) ethnographic examination of the emerging figure of the middle class entrepreneur in Barbados, entrepreneurialism is becoming a significant basis for citizenship, self-identity and cultural importance. Though Freeman does not discuss technology entrepreneurship specifically, the entrepreneurs that we work with both quote business and technology gurus and view American business culture as a goal to be achieved. At the same time, they employ social networks and cultural resources that have to be understood within a regional and historical frame. As in her account, here, tech entrepreneurship resides within the convergence and torsion of at least two discourses of entrepreneurship and class identity complicating dualist models that place modernity and tradition, the global and the local, hegemony and resistance in an overly oppositional framework.

The startup and tech entrepreneurship is a tool across class for its black participants. On one hand, for some, largely middle-class, entrepreneurs, they recognise a shared global struggle for empowerment based on historical biases assigned to race and colour. But alignment with The Valley's ideology, which I place here as expressed within technology choices, design methods, and even dress and aesthetics, offers a crucial distancing and legitimatisation through which they may perform a separation from lower-class cultural expressions and stereotypes of informal entrepreneurship as 'hustling'. On the other hand, the excitement about the tech startup comes at a moment in which poorer black Jamaicans have been increasingly rejecting the middle class values that had been the cultural and political brokers in their lives for decades (Thomas, 2004). The tales of power and financial success associated with The Valley, join examples in music and

media to provide alternative visions for mobility around the gatekeeping efforts around the middle class, including fellow tech entrepreneurs.

For both these groups, the mythos of the valley CEOs and founders who drop out of college, and launched a billion dollar business while still in their early twenties is appealing. Working on a startup is a way to set out one own's path to a future different from what has traditionally been expected of them: whether that was a now static seeming middle class professional career, or one limited by a lower social station. Founders can look to the tech startup's forms for opportunities to outfox or hurdle the island's extant colonial hierarchies — whether dominated by the middle class or the elite. Launching a tech startup is a chance at a level playing field or one finally stacked to their advantage, offering an alternative to what they see as inefficient business practices marked by outmoded protocols. The templates and attached hockey-stick narratives of The Valley promise a speedier, efficient meritocracy and the call for “disruption” promises a means to short-circuit or disrupt the old order.

4.3 Conclusion: At the Margin of the Margin

Two years after I left the field, I meet Pablo at a futurist¹⁶ event at a co-working space on a newly gentrifying block of San Francisco's SOMA neighbourhood — he is in the Bay Area to meet with potential investors and customers. The event, in true San Francisco fashion, has secured a taco truck. As we chat in line on the sidewalk outside, the man behind us in the line — we are, as is often the case, the only black people present — asks

¹⁶A former lead engineer on the iPhone development team is the headlining speaker. From “IOT to WTF”, we're told to expect a “no-holds barred discussion on what The Future holds for us all”

Pablo “where are you based?”¹⁷ His answer, “in between SF & Jamaica” is symbolic of the in-betweenness many of these entrepreneurs must navigate abroad and at home.

As I will describe in more detail in the following chapter, entrepreneurs like Pablo are at the margin of the margin. He is one of several entrepreneurs at meetings like Kingston Beta who have begun to master the contradictory maze needed to marry the here and there, and to pull The Valley’s forms into the local: the right platforms to use; how to advertise self and product; the subtle contours of its relaxed but enforced dress code¹⁸; which events to attend and who to meet. Pablo is dark-skinned, and racial and class features in Jamaica have traditionally been ranked on the basis of a European standard (Hall, 1977, 1991; Ulysse, 2007) but these alignments and other technology decisions, judged by the distance from The Valley’s understood norms, function within these pre-existing systems of stratification to “socially lighten” (Hall, 1977; Ulysse, 2007) him, and others, in rooms in Kingston and San Francisco where colour still matters.

The tech entrepreneurial route does offer points of disembarkation from the island’s culture and its hierarchy of colour and class. A successful launch however depends on one’s ability to adhere to yet another set of forms. Entrepreneurs in rooms like Kingston Beta work to cast themselves as capable: a battle they must fight both within and across the island’s borders. The “tech startup” might be a new global social, economic, and political phenomenon, but it exists within these long standing issues of race, class, and gender. Decisions about who counts as a valid tech entrepreneur and engineer are ar-

¹⁷This is a familiar experience for me. During my time back in Jamaica, I was often assumed, too charitably, to belong in most spaces. Back in the US, in both academic and professional spheres, my presence often seems a puzzle that people were determined to solve — albeit through oblique questions.

¹⁸Over the years we’ve worked together Pablo has almost always worn a black and grey toned ensemble of a hoodie draped over a t-shirt and jeans. However, the hoodie, the outwear of choice for the young tech entrepreneurial set in Northern California’s temperamental weather, has different symbolic meanings for black and white engineers (Nguyen, 2015). This, though, is something I do not raise in person in part because of the profound sadness I feel in pushing him to acknowledge a racially toned reading he might not have considered. I must live in that America but he need not, yet.

bitrated along lines of colour and class and now platform choice. PHP is not for the capable or Valley-savvy.

In these two hotel rooms, morning and evening, criticisms fly between and within largely middle-class groups. The culture does not accept failure or risk. The country is lacking a “proper” entrepreneurial mindset. If only here was more like there. But which here, and which there?

Tech entrepreneurship offers new possibilities but in practice it often retraces traditional Development logic. These ideas about various Jamaicas as ‘underdeveloped’ and limited by its culture and traditions echo the kinds of subjectivities that development creates (Escobar, 1995). It is not always clear whose practices need be improved and just who is improper. In the following two chapters, I look at the work of two teams as they attempt to move from pitches to find Product-Market Fit, examining how facets of personal, national, and product identity reflect on these debates across Jamaica and California.

CHAPTER 5

VIDEOLOGS AND DATA IDENTITIES

In Oakland, California, a man brushes past me as I exit my neighbourhood market. “Data”, his t-shirt informs me, “is the new bacon”. In Kingston, Jamaica, I sit in a nondescript hotel meeting room for a pitch on the potential at the crossroads of agriculture & information technology. “Data,” I read on the screen, “is the new oil”.

I hadn’t travelled to Jamaica from California to focus on data in particular, whether as oil or bacon, product or substrate. But these data metaphors, however silly they might seem, reflected the flow of anticipatory and revolutionary representations of technology and its development were flowing from site to site. Talk of the transformational power of data was everywhere. Open data portals offered the basis for better governance¹. The lottery scam, an advance fee fraud scheme, similar to “Nigerian” 419 email scams (Burrell, 2008), was powered by the brisk trade in “sucker” or lead lists (Walker, 2012; Akinladejo, 2007; Bourne et al., 2013).

And for a range of local startups, data, like the “new oil”, was something that they needed to uncover, refine and shape for market. In this chapter, I examine how one local startup, VideoLogs, a team working to provide businesses with emotional analysis of customer feedback, is navigating the mythologies of data and the realities of its production. Earlier treatments of the arrival and use of the internet and mobile phone in the Caribbean showed how these new innovations were channeled into long-established national and personal projects (Miller and Slater, 2000; Horst and Miller, 2006). The internet in particular took on a utopian representation that conjoined personal and market freedom with ideas of global mobility and identity, giving it “a symbolic totality as well

¹Williams, Rochelle. 2016. “Free Government Data Online.” Jamaican Information Service. Retrieved Feb 15, 2017 (<http://jis.gov.jm/free-government-data-online/>).

as a practical multiplicity” (Miller and Slater, 2000, p. 16). The same can be said about today’s growing flow of data and apps, powered by mutual improvements to internet services and mobile devices.

I focus on their production of a data service through flexible alignments of “black box” cloud computing systems, highlighting the opportunities and challenges that arise for startups within an entrepreneurial entanglement of self, product, and market. By placing their efforts against earlier attempts to develop a national data processing industry, I also show how these possibilities of data, as a symbol of modern technological practice, are incorporated into both the construction of new products and into the ongoing project of building a nation and a state.

5.1 Enclaves and flattened fantasies

As the “new oil” and “new bacon” metaphors reveal, Big Data and machine-and-metrics-based decision-making have been a hot topic over the past five years. But this is not the first moment when data offered powerful possibilities for Jamaica and its citizens. In the 1980s many of the countries in the region began to embrace the Informatics and Business Process Outsourcing (BPO) industry as a new stage in their decades-long effort for “industrialisation by invitation” (W. A. Lewis, 1950).

Those industrialisation programs has been launched in the 1950s as part of an effort to create a new manufacturing base that could supplant plateauing agricultural production and employ a growing population. Regional leaders, believing that it would be difficult for their small states to develop industrial prowess on their own, established programs that offered tax incentives, industrial plants, and reduced regulations to multinational corporations and foreign investors. In Jamaica, this program had focused on

the assembly of garments, the mining of bauxite, and intensifying the production of sugar.

BPO, when it arrived, would centre around telemarketing, customer service and a wide range of data entry chores. These included transcoding audio to text; digitising a wide range of paper documents; processing forms and claims; and handling exceptions in automated systems such as airline ticketing transactions (Skinner, 1998; Schware and Hume, 1996). These tasks required a combination of mundane “keying in” and contextual human decision-making.

In Jamaica, the imperatives for this transition to a service industry were rooted in the economic declines of those earlier industrialisation bases and a combination of local political ideologies and the requirements of structural adjustment policies. These latter policies, associated with economic stabilisation loans from the IMF & the World Bank, resulted in shifts that prioritised open markets, foreign investment, and privatization. At the same time, companies in the US were increasingly externalising their information and “back office” services, in synchronisation with the rise of commoditisation and “electronification” technologies (Hepworth, 1990).

This made attracting the outsourcing of data work a logical solution for national planners across the Caribbean. BPO afforded a switch to less tangible and more fluid forms in response to deepening collapses in commodity exports as globalisation increased and preferential trade relationships vanished. The hope was that a services industry, and informatics and data processing work more specifically, would re-create lost advantages while providing much needed foreign exchange to service loans (Mullings, 2004). Jamaica’s economic straits and the associated labor cost differentials made the island and much of the region a viable target for this work. What these new technologies made possible, the vulnerable economic state of affairs in Jamaica made profitable.

Jamaican planners saw a mutual benefit. In their plans and visions of the future, their trainable, English-speaking populace and the region's geographical and cultural proximity to the United States would allow the local data processing industry to grow alongside the efficiency demands of American businesses, simultaneously achieving America's industrial informatisation and Jamaica's national development goals (Schware and Hume, 1996; Planning Institute of Jamaica., 1996). Multi-national firms would employ and "upskill" citizens while facilitating technology transfers that would establish a vibrant local data industry (Intex, 1992).

These companies were established within export processing, "Offshore" Free Zones. Firms in the zones were exempted from taxes on profits, imports, and exports using legal systems and often the same buildings that had catered to previous industrialisation efforts. Jamaica Digiport International, the main data processing site in the island's second city of Montego Bay, provided uninterruptible power and a satellite earth station, allowing companies to skip over the island's ailing physical infrastructure and much of its regulatory system (Skinner, 1998).

In the garment industry, whose bones the Digiport was built upon, partly finished items would be transported to the island, stitched together, and put back on ships. This pattern would repeat as the zones transitioned to data processing work. Raw data would arrive at the nearby airport in paper form or electronically via satellite. It would then be processed and returned via satellite or flown by freight, encoded onto tapes or disks.

The industry quickly occupied an ambiguous space that the companies manipulated to maximum benefit. Although labor intensive and zoned in the offshore industrial sector, its symbolic links to white-collar computing gave the jobs higher status than those in the garment manufacturing industry. The air-conditioned environments were

a distinct shift from those intemperate factories and this shift in atmosphere was part of what Freeman (2000) describes as the “informatics language”: a technical data discourse of cleanliness, accuracy, and individualisation that was a source of symbolic capital used to foster identity and maintain discipline.

Both sets of workers were paid by the volume and quality of the work they produced, but in the BPO industry this new commodity was “information”—abstract and flexible. This combination of new technologies and imaginaries also represented a new arena for the creation and manipulation of workers’ identities (Freeman, 2000; Mullings, 1999). Operators were also encouraged to see themselves as white-collar employees, in the hope that this would circumvent the development of a “militancy characteristic of organised industrial workers” (Pearson and Mitter, 1993, p. 61). In Freeman’s account in particular, both the industry and the largely female workforce worked to stabilise the “pink collar” notion of an Informatics professional’s attire and comportment as a prerequisite to continued employment, reproducing, through separate lines of thought, a merging between colonial and digital values. A worker perceived as careless or sloppy in her appearance could not be counted on to produce quick, accurate data.

The field’s relatively low cost of entry attracted local companies—early variants of today’s startups. Working with data meant agility and the ability to act without the hurdles that had stymied entrepreneurs before. These local, typically subcontracting, companies were run by members of a growing black, middle-class professional class that, until then, had not been able to own the means of production, given the hegemony of minority ethnic elites in the more capital-intensive industries that had supplanted the plantation economy (Pearson and Mitter, 1993; Reid, 1980; Mullings, 1996).

But, while they had early successes in winning contracts, these achievements were short-lived. The government’s goal for the industry was to secure external investment

and foreign exchange, and the resulting incentives, tilted towards foreign firms, limited the success of locals by excluding them from the Free Zones², the benefits of reduced taxes, and the vital lower cost and higher bandwidth satellite connections (Mullings, 2004; Skinner, 1998).

This state of affairs continued even though a plurality of data processing firms were locally owned. While creating a wider data & knowledge economy was the national dream, these decisions on incentives reflected pragmatic choices for state management. As a result, despite early gains, these small local firms had trouble accessing the continuing capital they needed in order to upgrade computer, software, and transmissions lines, ensure a steady flow of processing jobs, and transition to higher-level services such as software development. Without access to the same incentives, the local sector of the industry devolved, and foreign, contracting companies began to perceive the Jamaican firms as inefficient and untrustworthy (Mullings, 1996).

The utopian data vision was also dashed on a larger scale. Hoped-for technology transfers failed to materialise and even the larger foreign firms only offered basic data entry and processing services. As Jamaica was attempting to increase investment in the industry, the technological advances that first enabled the externalisation of processing destabilised it. Continuing improvements to informatics such as optical character recognition and online transaction processing reduced the need for paper-based data conversion and the processing of forms and claims. And, at the same time, lower-priced competitors arose in the Philippines, Bangladesh, and China, who were all now more readily accessible to US following improvements to their telecommunication networks (Mullings, 1998).

²This segregation was also to follow the requirements of IMF policies that considered incentives to local businesses as a form of market intervention “reminiscent of earlier import substitution strategies” (Mullings, 2004, p. 290)

The industry's drive to the bottom meant that foreign-led firms would use the production and locational flexibility of data work to relocate quickly, and to circumnavigate any regulatory regimes and requirements unfavourable to them (Hepworth, 1990). Proximity to the US and competence in native English had lulled the Jamaican industry into a false sense of security while advances in communications technology eroded those advantages. As a result, the country had not developed enough technically skilled labour move up the ladder to higher margin services such as software development.

5.2 New Data Possibilities

Although BPO has yet to fulfil national digital knowledge economy dreams, it has not disappeared. The industry has actually grown in recent years. Today it employs roughly twenty-thousand Jamaicans, and the government and trade groups are jointly seeking to double that number over the next five years. While they continue to claim that these firms will eventually transition into offering higher level services, the firms are largely synonymous with call-centre services. Meanwhile, much of the data digitised in sites like Jamaica has now powered exponential improvements in machine learning and automated data processing, centred around The Valley. These new opportunities have provided a new landscape for data work.

Pablo and Clive are two of the developers navigating this new territory and building new data assembly lines. Their current product, VideoLogs³, is an online service for Customer Experience Management: an industry term for systems that allow businesses to track and manage interactions with their customers across various channels. VideoLogs offers subscribing companies the ability to quantify and track the emotional

³Pablo, Clive, and VideoLogs are all pseudonyms.

engagements of their customers via a more engaging alternative to common “Rate your experience” followup surveys that are typically presented after a customer purchases an item or contacts a customer service agent⁴. In their view, these forms are tedious and customers are unlikely to complete them. When submitted, the combination of rating scales and blank text boxes make them a poor carrier for the customer’s emotional response.

Instead, companies who use VideoLogs can solicit video responses from their customers via friendly prompts sent through email, SMS, or soon, bots for chat apps like Facebook’s Messenger. Customers could reply to those prompts via smartphone, and also add text, emoji “tags”, or even a selfie. These responses would be uploaded to the platform and then distributed to a network of machine learning systems that would produce an emotional score chart from detected facial expressions, sentiment analysis of what was said, and a range of other signals.

A customer, asked by an airline for feedback on a recent flight, might respond with a 15 second video. Once uploaded, the text would be extracted from the video’s audio channel, mined for relevant keywords, and run through automated sentiment analysis systems that would provide an overall assessment as positive or negative, along with a range of detected emotions such as sadness, happiness, or anger. The video would be broken down into a series of frames or windows, each of which would be also assigned an emotion, this time based on the customer’s facial features as detected by computer vision algorithms. Overall, the video might be scored with high confidence as “angry” but sections would be marked according to other found emotions such as “sadness” or “disgust”, allowing for undercurrents of probable and supporting emotions.

⁴Who might, for example, be working from a call-centre in Jamaica.

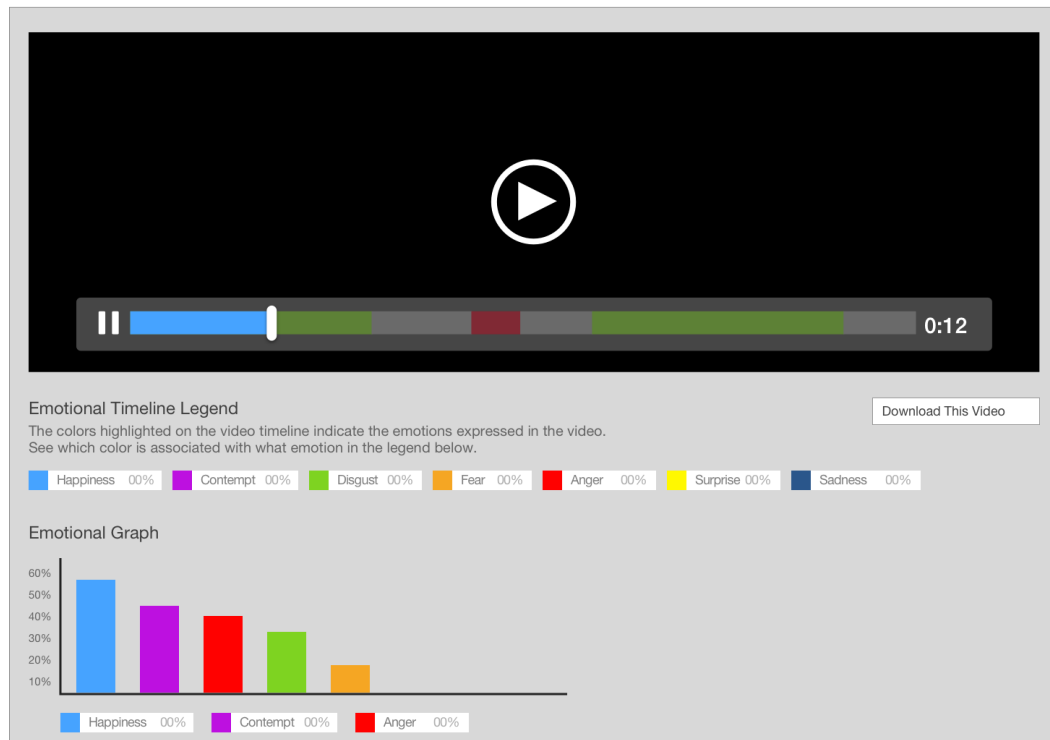


Figure 5.1: Video Analysis, from internal prototype development documents

The platform was also designed to aggregate these results, combining emotions derived from a customer’s emoji choices, facial expressions, and word choices into a “heartbeat” that companies could use to track their customers’ feelings over time. They imagined this to be a richer alternative to the Net Promotor Score (NPS)—a common but contested (Keiningham et al., 2008) measure of customer loyalty that focused on providing companies with the single number that they could track and optimise (Reichheld, 2003). Where the NPS was based on 0–10 scoring of a single question — “how likely is it that you would recommend our company to a friend?” — Pablo and Clive believed their emotional analysis was a better indicator of engagement, and that the heartbeat would bring these to the surface in a way that married the qualitative nature of emotions with the analytic power of quantitative assessments.

5.2.1 Background Data

Pablo and Clive were both in their early 20s and recent graduates in Computer Science from a well regarded local university. Pablo was committed to the entrepreneurial path, and had only done freelance gigs to support himself while they were worked on their startup. And, as the extrovert, he was the de-facto CEO — the one featured in company profiles and interviews. Clive, on the other hand was a professional software engineer, who worked at a leading local software development firm. He worked on the product around the hours he had available, which meant working a lot at night and over the weekends.

Together, they were emblematic of the now iconic Valley combination of visionary CEO and wizard CTO. They were both versed in technological trends — they’d both been using computers since before they were teenagers — but divided responsibilities. Clive handled engineering decisions, writing the majority of the “backend” code that would make up their products. Pablo handled the portfolios of business, product and interface design, and the more nebulous efforts associated with finding funding and “growth hacking”: a diverse set of tasks across engineering, product design, and marketing that used A/B tests, ad placements, social media, and other tools in order to test ideas and secure customers (Chen, 2012).

I didn’t get to know a lot about Clive personally. He was the quieter, more retiring Wozniak, to Pablo’s Steve Jobs⁵. He was an active contributor to a range of open source projects and when we met had recently published a how-to book on a fairly arcane feature of a popular programming language. Our conversations were largely on tech topics: various cloud architectural decisions, systems design, and war stories from my time working at Microsoft.

⁵Though I’m confident Pablo would choose Elon Musk as his tech visionary idol.

But I got to know Pablo well over our three years of involvement, particularly since our conversations were about a larger range of topics — from venture capital funding to industry gossip — and because he made several trips to San Francisco Bay Area between 2014 and 2017. During these visits, we would attend business meetings with potential customers and investors together, and I would have him over for dinner, introducing him to whomever I could.

Over time I learned how his first computer had “opened gateways”. It helped him realise that through he could virtually create anything he imagined. Through training at his high school computer lab he improved his website skills and started learning to program. He knew then that this is what he wanted to do and reoriented his career expectations.

He met Clive in university, bonding over mutual help for class assignments and over the realisation that they had similar aspirations about the future and technology. They built experimental apps together, and were part of a small team who represented in Jamaica in an international programming competition, winning on their second attempt. This motivated them further towards the tech entrepreneurial path which, by the time we met, had taken them to countries across Asia, Europe, and the Middle East. Pablo led them through several entrepreneurial courses and pitching competitions which helped them move from thinking about how to build an app to focusing on how to deliver a product and business. These experiences had also connected them with a worldwide network of mentors — people who had “exited” startups in The Valley and now worked within several entrepreneurial ecosystems across the globe⁶.

⁶See Haines (2015) for a larger treatment of this worldwide system of programs, which is beyond the scope of this document.

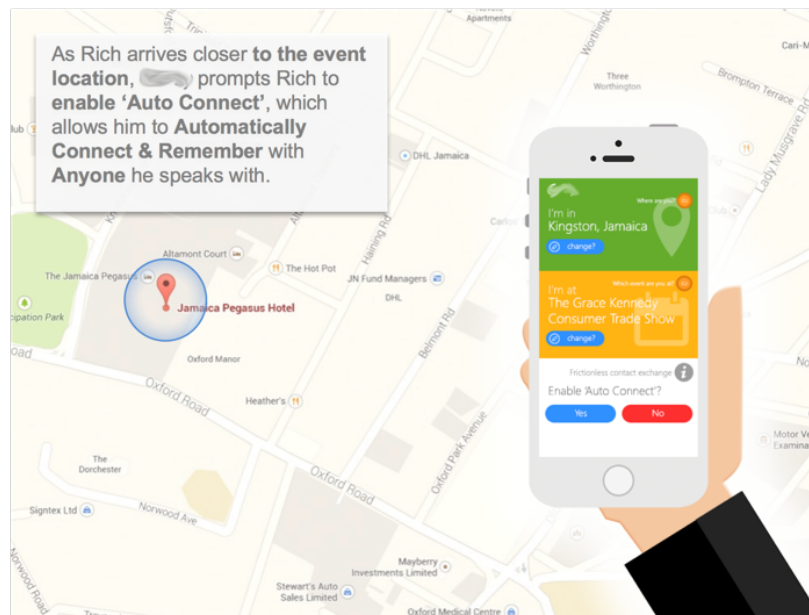


Figure 5.2: Pitching a prototype of the earlier B-Card product⁷

5.2.2 Pivoting

VideoLogs was the result of several pivots as the team worked out their product-market fit: the relationship between what they could build and what the market would respond to. With their previous product, B-Card⁸, they had focused on creating a free digital business card alternative for consumers that would be paired with a business-facing offering that included event planning, management and analytics. It allowed event attendees to exchange contact information, and track interactions via a combination of mobile app, bluetooth-based beacon devices for tracking locations indoors, and a mesh of online services. Attendees could sign up to use the app for free, as a passport for entry to events, to store and exchange contact information with people they met, and to provide feedback on the gathering. Event planners would pay to use the platform for organising events and would be able to access analytics on attendees.

⁷Image from company pitch deck materials

⁸Like VideoLogs, this is also a pseudonym

The goals for the product's growth were ambitious: replace every business card on the planet and build a company valued at least \$800MM USD. But getting it off the ground and landing customers and funding was a struggle. We spent most of 2014 reworking the prototyped system and to capitalise on possible customer interest, while redesigning parts of the product to appeal to different event coordinators and companies (fig. 5.3). We had a working prototype and a polished pitch deck. We pitched to a local investment group. There was interest but no deal was made.

By 2015, they had pivoted to a new proposition: VideoLogs. While both products centred on the potentials of data and machine-driven insights, VideoLogs focused on a slightly different domain. This new approach was the result of that struggle to find interest or “traction” for B-Card, feedback from an executive at Y Combinator, and a transformative experience living, if only briefly, in Silicon Valley.

Pablo had secured a place in a newly launched entrepreneurial training program. With funding support from Jamaica, he was able to pay the \$10,000 USD tuition and spend six weeks living in a refurbished 1920s era hotel in a small city on the San Francisco peninsula with a cohort of other hopeful tech entrepreneurs from all over the globe. Although we had continued to keep in touch after I returned to Oakland in the fall of 2014, I had spent some time away from fieldwork while recovering from an illness. Now, a year to the date of our first meeting in Jamaica, we would meet again but in California.

I drove across the Bay to the campus. We drove up to San Francisco, talking about new plans and past experiences — our old pattern from Jamaica traced across a new landscape. I learned that he had visited the visual effects company, Industrial Light and Magic — responsible for Star Wars — and almost knocked over the film director JJ Abrams. He had met four members of Seal Team Six. As the only black person in a program located in small, majority-white town, he struggled to get a decent haircut.

Once we arrived in the city, he wanted to see the headquarters of familiar startups in the city's SOMA neighbourhood. Driving through the Pacific Heights neighbourhood we chased views of the Golden Gate Bridge and searched for the house from the film Mrs. Doubtfire. We drove and talked some more. The experience of the months has changed him radically, he says. He's a different person. He has learned how to learn differently. He is surprised at the prevalence of cocaine at startup parties.

This immersion into aspects of The Valley's culture was a critical element in their transition to the new VideoLogs vision. He had learned that his focus should be on engaging with customers, not spending his time designing. While he'd been entrepreneurial for years — selling games as a teen, building websites — the program had taught him how to "hustle with confidence". To build VideoLogs and its vision of a world of business relationships built on emotional data, they had now changed their approach. Before, they had invested significant development effort into their earlier product before engaging with customers, only to find that Jamaican companies did not respond as they had hoped. Now they would develop the product only after they had sold the vision.

This new approach reversed their original risk but introduced another. They had invested months of work earlier but had not found traction—proof of market demand. This time there would be less investment in a data *product* and more effort spent on articulating a data *vision*. Their strategy for B-Card was based on presenting an almost-finished product to the public but this new approach would entail less up-front development work but a larger exercise in presenting themselves as already capable and ready. They would publicly present a vision as complete and recalibrate that vision based on interest. Their website had a "Sign up now button" — a common growth-hacking tech-

nique that made it seem that the product was already complete — but they might attract customers without being able to produce the matching system in time to satisfy them.

Later, sitting with them in the headquarters of Startup Jamaica over the Christmas holidays, they detailed this new vision. They realised that neither product would be viable within Jamaica. Though not developed to be sold to individual end-users, they needed data-savvy businesses who in turn had customers who would be likely to use a system like VideoLogs to provide feedback. Through B-Card they realised that Jamaican firms lacked the fluency in, and synchronisation with, the connected, data-driven world they imagined for their product and its users.

To give their company the best long-term chance, they also needed funding sources who understood this vision. This meant globally connected venture capitalists who were versed in the internet, mobile platforms, and industry trends in analytics and machine learning. This was about more than money; these funders could provide mentorship and access to a network that would legitimate their work, and thus help them win early customers and grow. This largely ruled out the sources of venture capital they might be able to access in Jamaica.¹⁰

5.2.3 Data moves more easily than its developers

As a result, they looked to Silicon Valley, which held sway as market, funding source, potential new home, and philosophically resonant environment. Moving to the Bay

¹⁰ Additionally, as Mullings (1996) discusses, owners of capital in Jamaica have generally been averse to lending across social strata for new, unproven areas, such as data processing during the early days of the BPO industry. Moreover, because of the Jamaican government's fiscal policy and approach to debt management, interest rates, particularly on government paper, have long been high, discouraging investments in startups and other high risk ventures (Levitt, 2005). While the government has been working to create structures to promote concerted investment in venture capital, today, as with BPO firms in the 1980s and 1990s, policies to support the repayment of debt management, hamstringing national ambitions for technology development.

Area from Jamaica however meant several hurdles. Immigration was a signification one but there were also institutional and cultural barriers. Despite claims of digital technology's global reach and The Valley's language of disruption, the industry centred there continues to be plagued by poor diversity¹¹.

They were developing at the margin of the margin. In Jamaica, they drew themselves as ahead of the market. But as skilled as they were as technologists, when viewed from The Valley, Jamaica was in the periphery and so were they. This double-consciousness was an important part of their decisions they made as they worked on the product and on the company they had formed around it. It informed how they framed themselves as a data analytics firm, how they chose their marketing messages, and even how they articulated their personal identities.

The intermediating qualities of the internet and the language of data and analytics had offered them an opening. They could defer to the identities of VideoLogs' methods, not theirs as its developers. A cartoon from the New Yorker magazine in 1993 symbolised this opportunity, depicting a dog using a computer while explaining to another that, "On the Internet, nobody knows you're a dog."¹²

It did not — or should not — matter that they hit "Release" while seated in a cafe in Kingston. Though they made plans and wrote code while on the island, they used the same development and coordination tools as other engineers located in California or distributed all over the world. The resulting service they made was accessible to anyone through a globally distributed platform.

¹¹Wiener, Anna. 2016. "Why Can't Silicon Valley Solve Its Diversity Problem?" The New Yorker. Retrieved Jan 20, 2017 (<http://www.newyorker.com/business/currency/why-cant-silicon-valley-solve-its-diversity-problem>).

¹²Steiner, Peter, New Yorker, 5 July 1993, p. 61

This opening has limits, however. For many startups, particularly those selling to businesses, initial sales and agreements are often built on, and nurtured through, personal relationships. As they work to find new customers and grow their company, founders often craft intertwined stories of self and product, delivered in personal and engaging terms. While this arc has come to be expected, particularly in how previous failures are articulated and then recuperated within a larger entrepreneurial journey, these personal revelations have different consequences for entrepreneurs who fail to fit the expectations of potential customers or funders.

These presentational strategies had been popularised by the largely white tech founders who make up the valley's understood default culture. These techniques for self-presentation affirmed their neutral belonging; their racial identity was hegemonic and unmarked (Eglish, 2002). On the other hand, being black or Jamaican was pregnant with potentially alienating meaning that interpellated their claims to a data-savvy, tech entrepreneurial identity.

Other, more foundational, choices can be read through this lens as well. They had begun realising their vision for VideoLogs by knitting together a fabric of APIs and services from cognitive computing platforms such as Microsoft's Cognitive Services, IBM's Watson and Google's Cloud Machine Learning Services. These newly available metered Big Data platforms offered a range of tools for needed tasks in computer vision—recognising people and objects in videos—and natural language processing. Ostensibly, this helped them fulfil VideoLog's promised features. But by connecting and curating them in turn, this compilation also leveraged the authority of the established firms that offered them.

Though the company's ethos was to directly link subscribing businesses and their customers through a rich channel of emotional information, data and its analysis pre-

sented the chance to construct an intermediary identity for themselves. Deferring to the neutral realm of data science, and the functional machine learning approaches aligned with it, offered an inclusive avenue for product and corporate development. It was a world vision that they knew the US market had responded to, but they also knew that trust in their ability to deliver that vision would be adjudicated along racial lines. Self-exposure then held few benefits.

Their adroit use of marketing strategies reflected this tacit understanding. They used their blog & social media to set out the company's direction in an official yet relatable and fun tone saturated with well-cited charts and statistics on their methods. The VideoLogs website reflected popular startup design trends—minimalist design cues, sans-serif typefaces and a restrained palette—but, unlike their closest competitor, their 'About Us' page did not include their photos or personal information. And they adroitly sidestepped the issue of location by using a legitimate address in California associated with the entrepreneurial program Pablo had attended.

At best, revealing or focusing on their identities might attract attention from customers or funders specifically interested in supporting diversity in the industry. But they might also alienate potential customers at a time when every opportunity mattered¹³. Each video call with a prospective business had a background hum of tension, as we attempted to gauge any negative reaction to our faces or their accents¹⁴. Another New Yorker cartoon, this time from 2015, highlights the ramifications of this new personal and more social landscape. Two dogs, seemingly older and world-weary versions of the pair in the 1993 cartoon, watch their owner use a computer. One, turning to the other, asks: "Remember when, on the Internet, nobody knew who you were?"

¹³Studies such as Ayres, Banaji, and Jolls (2015) have demonstrated the negative effects of perceived racial identity of sellers within online purchasing behaviour. See Fairlie and Robb (2008) for a wider examination of the relationships between race and entrepreneurial success.

¹⁴As we worked with possible companies, my light skin colour, California-affected accent, and Fortune 100 history offered a mediating, translating, service.

5.3 Conclusion: Reassembling Data

Despite its promises for a new direction in Jamaica, data processing in the Free Zones had become a metonym for the larger enclave in which the country continues to be positioned. Firms arrived surrounded by utopian promises of a democratic, emergent global knowledge grid wherein newly digitised information would “reduce gaps in vital knowledge worldwide” (Dizard, 1989, p.16) but today, data-entry work has primarily functioned within larger trans-border flows, namely of capital. The flow of data to Jamaica, and the control of its processing, retraced and intensified politically & economically asymmetrical lines between countries meant to be the core and those to be maintained at the periphery (Mullings, 2004). Jamaica’s economic straits and its structural adjustment to open markets and deregulated spaces married well with these data-driven processes of externalisation.

The Jamaican government’s attempt to build a data and technology industry relied on policies and concessions targeted at investors, references to cheap labour, and preferential market access. The materials depicted neoliberal tropical paradises with open economies, and friendly natives — state science-fiction dreams of high tech and advanced capabilities that planners hoped would actually become true (but have yet to) (Klak and Myers, 1998; Graham, 2001). In these materials (Intex, 1992; Klak and Myers, 1997), the “failures” of the state were positioned implicitly as an opportunity for companies where the sites such as Free Zones functioned as partitions that sealed businesses owners from the effects of those failures, while also limiting state interference¹⁵. These accommodations revealed an intolerance on the part of industry investors and leaders for what Klak and Myers (1998) refer to as spatial and contextual differentiation.

¹⁵A structure Ferguson (2006, 2005) discusses being similarly in play across Africa

This intolerance would make it difficult to effectively territorialise an industry largely indifferent to location. Working with data did not usher in a new era in the island's industrialisation. Mullings (2004) argues that the intangibility of data work, and the fluidity it enabled, made the nation more vulnerable to exclusion and marginality. The countries whose raw data flowed into Jamaica were reluctant to distribute the wealth and expertise that emerged from processing it, while the compartmentalisation and architecture of the industry's global processing pipeline made it difficult for local companies to participate as equals and build a vibrant Jamaican industry. Jamaica, it seems, was designed to be a dominion of the global knowledge community, not an equal member (Skinner, 1998).

BPO painted the picture of Jamaican technological possibility in strokes of cheap labour and low complexity (P. Anderson and Witter, 1994). And while inequalities of gender, race and income provided the low wage conditions that attracted early data entry, they make it difficult to foster the kind of innovation necessary to develop an industry, while encouraging crimes like the lottery scam, whose lead lists were originally sourced from BPO workers disgruntled by their pay and motivated by the visibility they had into the lives of the customers they supported (Caribbean Policy Research Institute, 2012). Pablo, Clive, and the other entrepreneurs who move through the island's tech ecosystem are working to break through those enclaves of the past and paint a new image. Here, data offers yet new possibilities, this time united with internet infrastructures understood as emerging from, and responsible for, Silicon Valley's successes.

Empowered by these new systems and their opportunities, Pablo and Clive are revisiting the BPO formula. VideoLogs is a reconfiguration of the assembly lines of human data processors into a loosely coupled bricolage of distributed services and databases. Instead of managing their own servers and building their own machine learning models,

they outsource those concerns to cloud computing firms, echoing, through new materials, what BPO management firms were able to do through subcontracted global labour. This explosion and rearrangement is now providing them with a measure of control that had been denied to a previous generation of entrepreneurs. By outsourcing elements of their analysis, their advantage emerges in agility and flexibility not domain expertise in statistical methods, computer vision, or computational linguistics. This integrative, generalist approach emphasises work at the seams (Vertesi, 2014): making multiple local alignments between heterogeneous infrastructures in order to produce a processing pipeline and a (seemingly) seamless experience for their customers.

Their approach is closely linked to newly emerging technical capabilities in online services and Big Data but it is also a reflection of capabilities and modes of being that extend beyond the screen. The hope for the blossoming startup ecosystem and the services industry that preceded it continues to be that opportunities in the digital and knowledge economy will compensate for losses in traditional modes of production and energise the productivity and creativity of citizens. Drawing on multiple lines of analysis, Freeman (2007) argues that this shift in modes of production has demanded a flexible, autonomous subject who can thrive within the precarious flows and frequent reorientations as the static hierarchies of previous economic formations fade. This embrace of flexibility is revealed in Pablo and Clive's identification of data opportunities. Flexibly aligning and loosely coupling newly emerging forms of computational services has helped them secure a niche at the nexus of product and market demand. It drives their curation and then tactical deployment of computational power and authority in order to fulfil their vision and modulate to concerns about their identity.

New conduits offer new opportunities but, in accelerating the hyper-mobility of capital, also put in place systems and flows that can quickly increase marginalisation and

inequality. In the face of these demands, entrepreneurs like Pablo & Clive continue to find ways forward, meeting the challenges of development by finding niches and seizing on approaches and patterns that had excluded them before—advancing their own visions through tactical conjunctions and flexible alignments. The failure of a previous generation’s effort to territorialise a data-processing industry is a reminder of the attendant impermanence of, and risk in, a niche founded on the possibilities and shifting priorities of external platforms.

Like the plantation economies of the earlier centuries, the data work done then in the tropics provided the fuel for the complex systems of today but the coupling between American information industrialisation and Jamaican development goals was only temporary. They made possible the conversation of records and information into machine-readable forms that would not have been undertaken without this “cheap option” (Pearson and Mitter, 1993) but the industry largely did not fulfil the hopes placed on it, and as with those plantation economies, much human agency still remains determined by an economic structure controlled by powers outside the island. This demands that we interrogate the supposed revolutionary ordering of today’s algorithmic and data-driven opportunities, both for society at large, and specifically for those who attempt to build on it from the industry’s margins.

CHAPTER 6

GOLEXIGO AND STORYWORK

“GoLexiGo’s purpose is to unleash potential. Our vision is a world where children are empowered to confidently express themselves and positively shape their world. We exist to build and nurture a global community of engaged kids who enjoy spelling, writing and telling their own stories. In the design of our product, we value cultural relevance and inclusivity, curiosity and continuous learning about our audience, kid centricity and encouraging self worth in a wholesome way”. [Excerpted from internal docs]

Kenia and I have been working on making GoLexiGo (GLG), a “culturally relevant adventure game” that would teach kids to spell by immersing them in a world of words. In the game, a quixotic fog, Oblivio, has descended across the landscape, robbing the natives of their vocabulary. Lexi, a young Wordsmith with poofy purple hair, hiking boots, and a satchel, is on a quest to find her missing father Magnus, another Wordsmith. Her adventure takes her from town to town where she liberates the villagers from their lethologica by solving word challenges and dismissing the fog with spelling magic. The challenges in each town would be embedded in stories matched to its people and landscape. Each success would take the player along a larger journey towards literary confidence.

Creating this dynamic world that would excite and educate kids required solving a broad spectrum of challenges. Chatting with Kenya after I had read a document laying out the new vision for the game, I referred to this as “storywork”. This became my shorthand for all the things we needed to do — software engineering, visual design,

¹From company and collaborative work records



Figure 6.1: Early GoLexiGo brochure developed for teachers¹

character development, and scriptwriting — to create an experience that was immersive, effective, and most importantly, possible for us to build.

This new product vision was the latest pivot in a series of prototypes and plans. GoLexiGo itself was the latest step in an entrepreneurial journey that had taken Kenia across stages in the US and Europe over the last three years, where she had won awards and grants totalling over \$50,000 USD. With money and legitimacy in hand, we were now on another journey, as we negotiated the maze of possibilities through which we could bring a literacy product to market.

We had lost our way in dangerous territory. The market for education technology was littered with the failures of previous startups and the team's funding, most recently sourced from the Development Bank of Jamaica, would run out in a few months. This new vision was the result of three weeks of writing and rewriting a story that would

convince potential investors that what we had been working on had value and that we were the ones capable of building and growing it. Storywork was an apt description for this challenge as well.

Making GoLexiGo has been a process of crafting and telling stories of various kinds. In this chapter, we discuss three interwoven kinds of storywork. In the first storyline, we outline our attempt to turn ideas — through prototypes — into a functioning product, and a vision for social change into a business. I contextualise this effort by placing it within a second storyline, drawn through the fractious Jamaican terrain of race and national identity. Finally, all these intertwine within a personal story for Kenia as an agent of this social change. For her, the turn to the digital and entrepreneurial is but the latest stage in a project of finding meaning and navigating her way through a fog-shrouded world.

6.1 Brief Note on Construction

Kenia and I have woven together this account based on my analysis, materials from our product development, and notes constructed from our conversations. Our goal was to produce a base of text suitable for multiple audiences. Here, as the primary author and editor of a version shaped for an academic audience, I have structured parts of this as a dialog, and have left in shifting voices and unsettled perspectives that arose from that weaving process — much like our development process and partnership thus far. I have tried to present this within the limitations of this format by using footnotes and block quotes to mark dialog between Kenia (KM) and myself (KW)². As such, this chapter is an attempt to capture in text a process that has yet to end, and remains a puzzle, even

²Footnotes without a leading “KM” or “KW” act as direct notes to the reader, rather than representing communication between us.

Lexi Lore

Big Idea: A byproduct of literacy is magic - the confidence to create anything, go anywhere. This is why we are building magic into the imagery.

What do we want the user to feel?

- **Enchanted-** like they could get lost in this world
- **Smart-** progress duly noted at each point
- **Motivated-** Encouraged. At no time should a child feel that where they are in their journey of learning to spell is wrong. It is part of their deciphering the puzzle of patterns. Each bit of progress made should be celebrated.
- **Confident**



Figure 6.2: Lexi Lore: What do we want the user to feel

to its authors. As such, this remains a rough draft, like our continuing work of product development.

6.2 Developing the Right Words

GLG's tagline — "Creative Storytelling for Social Change" — spoke to its position at the head of a series of releases and prototypes aimed at social intervention. We were producing the game with the staff from ListenMi, an illustration and sound design studio that she had launched with a co-founder to produce more culturally relevant stories. The company, staffed by graduates from the Edna Manley College of the Visual and Performing Arts, sought to build a broader creative community that could support illustrators and designers.



Figure 6.3: Cover image of "Kam Kam goes to Space" from internal company documents

KM: I had been producing national TV and radio advertising campaigns for years with my co-founder. I got inspired to launch ListenMi one day as we shared our vision for more diversity in cool, educational and culturally relevant storytelling. We also believe in the power of the next generation to make things happen that have never been conceived before, and wanted to help pave the way.

In 2014, they produced their first app, *Kam Kam goes to Space* (fig. 6.3), a "Caribbean bedtime story about a little girl with big dreams" that featured local voice actors. In the following year, the team partnered with one of the country's Maroon groups to make *League of Maroons*, an interactive kid's comic³ drawn on a reimagined history⁴ of the country's Maroon communities: escaped slaves who had battled for and secured their

³KM: "a playable story"

⁴KM: Loosely based. I tried to anchor it more on familiar characters, figures and locations and less on historical facts/events some of which, as we discussed, are very polarizing.



Figure 6.4: Cover image of "League of Maroons" from internal company documents

sovereignty during the island's plantation era. While they were popular figures from the island's past, they are economically sidelined today and the company contributed part of the proceeds from the comic's sales to a development fund for the community.

Kenia was driven to create GLG after then undertaking Project GreaterCakes⁵, an effort that combined in-person workshops and a digital platform to teach kids how to write, upload, and share their own stories (fig. 6.5). The project took place in Trench Town, a poor inner-city neighbourhood in Kingston⁶, where they provided fifty children with three weeks of intensive storytelling courses and then partnered with a community of artists & writers to edit, illustrate, and then publish those stories.

⁵A Grater Cake is a Jamaican pastry made with grated, sweetened and dyed coconut.

⁶It is also known as Bob Marley's former home, and often referred to as the birthplace of modern reggae and rocksteady music (viz. Bob Marley's 1970s hit, "Trenchtown Rock").



Figure 6.5: Composite image of Project Greater Cakes, made by authors from company materials

They had gone into Trench Town to teach the girls there how to code, but after a visit to the community's reading centre, they realised there was a more basic problem to be solved. The kids at the centre struggled with reading and writing, and they had serious problems with spelling and grammar. Code would have to wait.

KM: And to compound that, there was a real struggle with critical thinking and written free expression of original thought, without fear of always being 'wrong,' ridiculed and the haste to erase. [Meanwhile, uptown], they believed in the value of their words and were not afraid to commit their ideas to paper.

The team felt that the children in marginalised communities like Trench Town rarely associated early success and an ability to make a difference with people that looked like them and had come to look outside of their communities for a sense of positive identity. Spelling as a gateway to storytelling was a project of simultaneously improving basic literacy and children's self-esteem. By encouraging creativity and expression in a fun



Figure 6.6: Caribbean Speller, image from company pitch deck materials and internal prototypes

way, narrative could be used to teach them to how to write their own stories and plans for changing the world.

6.2.1 Prototyping

KM: In late 2015 we met with Qasar Younis [then COO of the Y Combinator accelerator in The Valley] who advised that we create fun, digital Caribbean textbooks. We decided to combine that with what we had already been doing and were passionate about: storytelling.

KM: We had been discussing production of a spelling video concept with [a woman] who had done a sample video she had used with her dyslexic kids and tested with other kids at 3 schools. She had received an endorsement letter from the Minister of Education. I researched the method she used and discussed it with clinical psychologists who said with some tweaks it could

aid in memory recall. I shared my vision for taking it in another direction by developing more exciting content for the Tablets in Schools program instead, and for parents and at home usage as a secondary market. Shortly after, she landed a job and announced she was unable to continue on the project.

KM: I developed the word lists, used the approach we had researched (which [our spelling consultant] identified as look-say-see-write-check-write) and made *Caribbean Speller*, the first prototype. I pitched it as a part of a solution that combines learning with our end game of getting kids to write and publish their own stories, and saw it as a 1-2-3 component: 1) videos that teach; 2) stories and games that practice; 3) a platform that publishes.

KM: Feedback centred on the fact that the idea had a strong impact component, kids development is important, the potential market of institutions seemed legit because there was indication of interest and there seemed to be a market of underserved kids with a need for improved literacy. It could have a potentially global impact while being able to track how it was making kids feel better about themselves, through what they wrote.

The team had intended for *Caribbean Speller* to be deployed as part of a national Tablets in Schools Programme⁷ and similar efforts supported by institutions by banks and other private sector organisations. Concretely, it would serve to help students with preparations for annual, nation-wide literacy tests. Having developed and pitched this prototype using videos and a digital mockup, they now wanted to make into a complete,

⁷Tablets in Schools (TIS). (2014). Retrieved from <http://www.elearnja.org/tablets-in-schools-tis/>

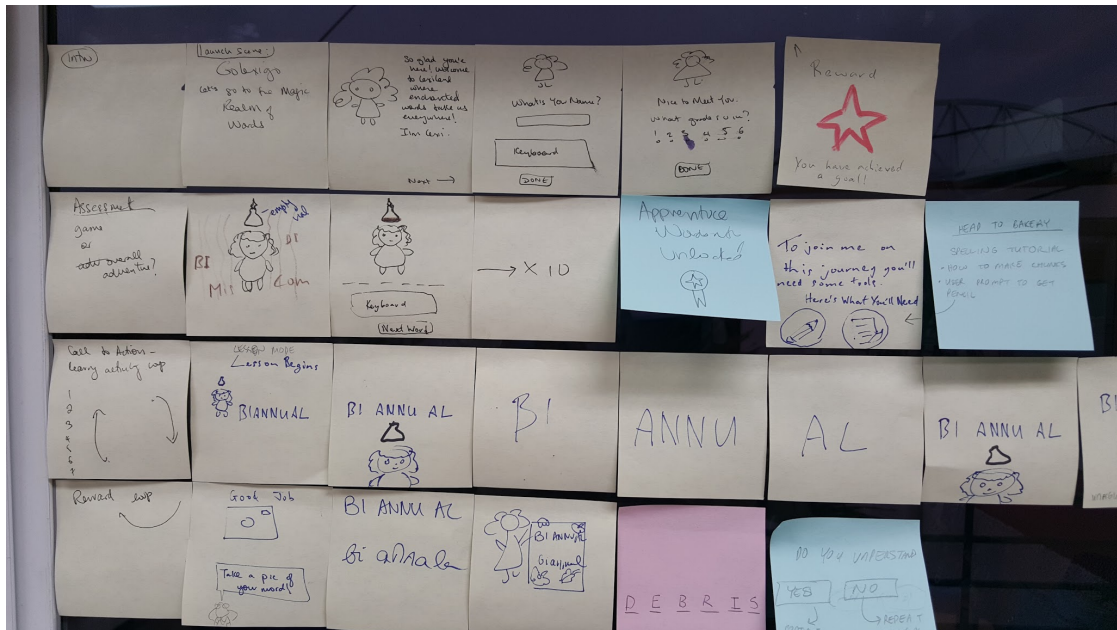


Figure 6.7: Mapping out the flow for a new prototype, from collaborative work materials

interactive, and polished product that could fit in a school environment. It was here that I joined the team, connected through a mutual friend and fellow entrepreneur, to help develop requirements and create an implementation plan that would fill in what the prototype had suggested.

We began straightforwardly, using story mapping techniques (Patton and Economy, 2014) and wireframes to work out how users would flow through the app's features (fig. 6.7). The prototype was an answer to a literacy problem but it was also an invitation to an unfolding set of questions. For instance, the methods behind the first Caribbean Speller prototype depended on children writing words down on paper as they prepared to type them in. This rehearsal was a critical element in our knowledge-acquisition model for kids but how would we enforce it outside the workshop environments where the prototype's original idea had been developed?

Across several design meetings we shifted the game's design language and structure to address these challenges we discovered as we explored the terrain brought into being by the original prototype. In this case, we sketched out a workflow where kids would use their device's camera to capture a photo of their handwriting and we wrote this into the game's design language. Kids would "capture" this written words into their lexicon backpack in a way that we hoped would be fun while reinforcing our spelling strategies.

This element of the design was fun. We were generating a lot of ideas but how would we decide which had value and were worth pursuing? Coming up with ideas was one thing but enforcing a process that made sure we could actually deliver on them, or that they would fit with our imagined market, was another.

KM: We were in a constant cycle of change without sticking to one version that we can test and document what's broken before doing so again....[The] danger is that while our solutions may be 'cool' for us, they may not address the problems we should be trying to solve/questions we should be trying to answer.

Faced with a small budget and no in-house game or software developers, we switched to a board game format (fig. 6.8) so that we could quickly, and more cheaply, work out our ideas by testing them with kids. Our plan was to settle on a world design, story, and some core game play mechanics first and then make the financial, technical and time investments to make a digital versions once we had more confidence. This was inline with much of the common startup orthodoxy of building small prototypes—MVPs — that could be continuously improved through cycles of building, measuring, and learning (Ries, 2011; S. G. Blank, 2012).

⁸Image from internal testing and development



Figure 6.8: Putting together a rough draft of our game on paper⁸

Our first prototype board game involved a 10 word spelling assessment test and then 40 spelling challenges spread across four towns. An in-house test with team members showed that it took an hour to play — not including the 45 minutes to learn the rules. Education had overshadowed entertainment. Our prototyping raised deeper questions about building a curriculum: How many words should we target for children to learn per session and per day? How many minutes of storytelling vs. spelling would be required to create sustained engagement? These were all issues we needed to address in order to take our idea and prototype from the pitching stage and into a product.

We set out to address these questions by creating a focused and immersive experience using just a single town on our world map. The team scripted a full story that placed the words into a cohesive tale and mission that were connected to design elements anchored to the town's occupants and landscape. And we targeted a more manageable twenty minutes of engagement across ten word challenges, spelled one at a time, rather than in the batches we had used before.



Figure 6.9: World map, instructions, and play elements from a later board game prototype, focused on a single town. Image from collaborative work materials



Figure 6.10: "Venus 4", a late stage board game prototype. Image from collaborative work materials

Over a series of prototypes, we began testing with kids, making changes as we went. We added new challenge types and spelling input techniques — unscrambling words, and assembling them through chunks. We replaced hand drawn illustrations with more detailed digitally produced versions and also added more illustrated backdrops to increase engagement & immersion (fig. 6.10). Testing with kids showed that the game was beginning to feel fun and not like a test and spoke to many of our values. But did their spelling improve as a result?

6.2.2 Switching Targets

After five cycles of prototyping, our incremental approach had helped us advance steadily, and affordably, towards solutions for the problems that had emerged as we prosecuted our prototype. But each solution had also incrementally shifted the alignment between our product and our original target market, through the accretion of scenarios that we could more easily imagine, design for, and test a discovered problem and its solution within. This reshaped how the product would be brought into use: the target environment, the profiles of the students who would use it, and even the project's material form, which had shifted from a tablet application to a board game, albeit, we hoped, only temporarily.

We now planned to offer subscriptions directly to parents for home use, targeting middle class households where parents were already purchasing educational games for their children. This had emerged from an interweaving of those reactive weekly decisions and a more strategic, long-term planning process. For example, we needed to establish repeatable testing environments for our rough prototypes but the initiatives for placing tablets in schools were progressing slowly and unevenly, and they were largely underway in schools outside of the team's location in Kingston. This would have meant

extensive travel, more formal test procedures, and long feedback cycles. Instead, we turned to parents who were easily accessible to the team's social networks.

And, while kids would be the main users of the completed app, we had initially targeted donor organisations and the government as the paying customers, at least for the first year of use. As we went about turning this prototype into a product however, we needed to consider what sponsoring institutions might want to promote, what principals and teachers at various thought was valuable, and what parents might want at home. Engaging with all these stakeholders during the design process had produced competing requirements from audiences with different values and ideas that needed to be aligned, as did purchasing timelines and distribution logistics. Finally, while the product's initial pitch was that it would help kids master a list of words as they prepared for an end of year literacy test, we learned that the test would no longer be a priority and there was little consistency among schools as to what it meant to be spelling at any grade level. This all made project management difficult, given that we would still have to make a game that kids would love and produce measurable improvements in their spelling.

Middle class households provided a target audience that we hoped that we could more easily design with, market to, and price a subscription for that would match our production costs. In theory, this would allow us to develop product development skills that would have been stretched in the more difficult scenarios, such as selling to schools, or to lower income markets who spent less on educational apps, had unsteady internet access, or limited access to digital payment systems. However, this was a difficult to come to terms with in practice, as the original prototype and vision had emerged from Project GreaterCakes and the hope to address the literacy challenges in inner-city, low-income areas such as Trench Town.

Still, we hoped that the product itself would still improve the spelling performance of these children. A larger round of testing challenged this thinking, however. Through a scheduling mixup we tested our final spelling prototype with students from a school in a similar inner-city neighbourhood rather than an “uptown” school whose households matched the profiles we had developed. The company’s public trajectory was built on addressing schools like this and we had an existing relationship with that school’s administration that we wanted to maintain for when we would eventually return to our initial target audience. We hoped that our new prototype could work for them as well even though we had not yet figured out how to price and deliver it in a sustainable fashion.

It did not. We intended for the game and its diagnostic system to place students into broad, grade level, bands of spelling capability but this banding did not address the mistakes that students at this school commonly made based on differences between Jamaican English and the American English context of our spelling expert’s curriculum and advice, nor did it address the challenges of addressing the spelling issues of children for whom English was a second language. And in our testing we also realised that our game was too simple for those who we thought could afford it. We had ended up in a No man’s land

6.3 A Fractured Project

Kenia had engaged a well regarded American expert⁹ in literacy education and spelling to secure his advice and direction on developing portable standards for teaching spelling. I had joined to help with software development. But addressing what seemed like a narrow enough set of technical problems — finding research backed approaches for teaching spelling concepts and then building a mobile platform to deliver them — was an entry way into the complexities of Jamaica’s struggling public education system and the socioeconomic hierarchies that shape the Island’s language. Fractures in the country’s demographics and culture had complicated our charge to both simultaneously improve children’s spelling and to champion cultural identity. This highlighted two related critical disjunctures around language and cultural symbols that were more important than technical infrastructure and payment systems. In the following section I explain this ruptured landscape, and then explain, how, through new visions of the project, we were attempting to find a safe route through

6.3.1 Language and Rupture

First, our approach had underestimated the challenge of teaching spelling across Jamaica’s classed educational environments. English was not the first or primary lan-

⁹I was told in several interactions with entrepreneurs about the reluctance of local companies and institutions to accept software and services produced by Jamaicans — i.e. largely Black Jamaicans. A few reflected that they had successfully dealt with this by having an American involved, which mollified the audience despite the foreign partner’s low involvement in the actual development process. They placed this within a local preference for “foreign” products which were accepted as better without due diligence. Having an externally certified partner made the enterprise more official. In my years working with Jamaican companies, this is a pattern I recognised from both sides — having been used to satisfy just these kinds of concerns. And to something degree, this is understandable. There is more at stake in purchasing software and services than just the purchase price: issues of support, and concerns that this company might not be around in the future. While this is a factor for US companies and startups who disappear all the time, the track record of many of the products I’d seen locally makes me empathetic to the concerns of these businesses and government agencies.

guage for many Jamaican children and our approach had not acknowledged that reality and had placed all students on the same line of spelling competence.

Many, if not most of the island's children, like those at the primary school where our ship had run aground or in communities like Trench Town, have to manage their use of English in the classroom and Patois, or Jamaican Creole, outside it. Patois¹⁰ is prevalent across Jamaica but retains a second class status in classrooms and centres of political and economic power. That it is even a language and should be recognised as such remains a fervent debate (Cooper, 1995; Wassink, 1999). As a result, these children have to master two worlds with sliding boundaries and complicated rules on orthography, pronunciation, and self-presentation.

This is not just a matter of speech and spelling. Identity is a central element of any discussion of Patois. The language was born from cultural and socioeconomic ruptures and that its use remains a source of psychological and ideological complexity (Bryan, 2004). Patois, Bryan argues, continues to challenge modernity's standardising impulses, layering on changes and resisting homogeneity as it evolves beyond the collision of Africa and Europe at the heart of the New World and through the country's diaspora.

This has resulted in a fluidity and continual movement that makes it difficult to draw distinct, stable boundaries between Patois and standard English. In this way, the language can be seen as a metaphor for the island — a reflection of its conjoined histories and ongoing struggle for dominance between various racial and class projects (Bryan, 2004). To speak in one tongue is to choose one's position in that fluidity and is an act of communication, identity, and, often, activism.

¹⁰Linguists prefer to say "Jamaican Creole" rather than "Patois" but I use the latter to reflect common, everyday usage

The language's use was once significantly segregated by race and class but today more Jamaicans across these boundaries identify with it, and view it as core to their identity (Bryan, 2004; Cooper, 1995). Analysis of public discourse — talk radio, newscasts, and print media — over the past 30 years has shown that the numbers of native English speakers have been decreasing, which the authors suggest reflects a breakdown in The Island's strict diglossia where English was used in formal situations and Patois reserved for informal ones (Westphal, 2015; Shields-Brodber, 1989). Importantly however, mastery of standard English, and its use as a first language, still aligns with economic, class, and racial boundaries. While Patois' political and public status has increased, it is not yet part of the formal educational environment. There is no official orthography taught in schools¹¹, and given the island's renewed emphasis on national development through the knowledge economy and the development of globally legible, English-fluent citizenry, it seems unlikely that this will change.

6.3.2 Cultural Fit

The second issue was that our vision of the GLG world did not interrogate the cultural symbols we were borrowing from Jamaica's professed multicultural, Out Of Many, One People, harmony, and thus risked undermining the educational and the cultural realities of the children we had begun our development project to help. We had a vision but we also needed to think about who and what that vision might marginalise.

This linkage between language use, class ordering, and the development of citizens as part of a national identity have been a part of Jamaican history for almost two centuries. As it had around the British Empire, colonial rule on the island had produced

¹¹While Kenia and I are fluent speakers, I often struggle to read the diverse forms through which its sounds are approximated in an increasingly text-driven world (Hinrichs, 2006), making it difficult to use, even in our chat sessions about the GLG product development process.

hierarchies of education and status bound to colour, class, culture centred around the superiority of the English (Thomas, 2004). After the abolition of slavery, a small black middle class of teachers and ministers, continued to emphasise respectable values of a land-owning peasantry as vital to the development of Jamaica as a black nation (Five of Themselves, 1888).

Once Jamaica secured independence in 1962, creole nationalists focused on continuing the industrialisation by invitation efforts that had begun in the 1950s in order to develop and modernise the country (W. A. Lewis, 1950). They strove to establish a national cultural identity and citizenry that would support this effort. They were concerned that lower class political and cultural agitation, threads of which had focused on marxism in the 1940s, would damage this project of capitalist rule and they emphasised both multiracialism — reflected in the nation's founding motto of "Out of Many, One People" — and a folk identity that could foster national belonging among Jamaica's black working class (Thomas, 2002; Robotham, 2000).

The state promoted cultural symbols that privileged peasant folk culture and a connection to an African cultural heritage, revitalising practices that had been discouraged or banned during the colonial era — rituals, foods, music, and more (Brathwaite, 1981; Chevannes, 1998). While this improved the negative symbolic conceptions of Africa that were then common across the poor to the elite, this focus on the rural peasantry excluded and marginalised other visions associated with a then rapidly growing and increasingly unemployed urban group (Thomas, 2004). As Thomas argues across a series of articles, those marginalised visions have typically been framed transnationally, as many working-class Jamaicans migrated for work across the Americas and the UK, developing an increasingly diasporic consciousness and movement that drew on a multiplicity of ideologies and geographical locations (Thomas, 2007, 1999, 2006, 2002, 2009).

Even though the rural lifestyles that had generated and nurtured these now celebrated “folk” practices were fading due to rural-urban shifts and new industrial work outside of agriculture, Thomas (2004) argues that creole nationalists asserted and encouraged this vision through the twenty-first century in part because they hoped it would provide the foundation for a vision of blackness that was dynamic and creative and would allow Jamaicans to cope with the rapid changes after independence and through globalisation today. Critically, the creole emphasis on folk and afrocentric projections did not represent efforts to actually change the structures in which black Jamaicans were positioned in the national order. It primarily served to validate a respectable national citizen and with that, a view of what and whom progress and development for the nation should be based (Bogues, 2002; Robotham, 1998; Ulysse, 2007).

This has produced a conflict over the meanings of Africa and its place in Jamaica’s past and present, bound to different ideas of citizenship, belonging, and progress. The folk-bound blackness that the early nationalist creole effort projects into the future is a utopian “authentic” territorially-bound nationalist vision that looks backward. This embraces Afrocentric blackness as cultural image but rejects blackness as a tool for political mobilisation, making it more of a tool for stasis. This is what Thomas (2004) refers to as a “tamed blackness” that mirrors the values of the creole professional middle class. Its alternative, what Thomas refers to as Modern blackness is mobile and diasporic, reflecting the now majority diasporic experiences of the population and is not grounded to this past in the present, nor does it use that past as the basis for a utopian future.

6.4 Product Making as Self Making

The vision for GLG and even Kenia's larger entrepreneurial and product development journey can be seen as a navigation of these two different visions of blackness and national identity. It reflects her evolving identity as Jamaican, black, and female.

The development of the League of Maroons app provides an instructive example, connected to her own heritage. A decade earlier she had discovered that her grandfather, known for his 'red' complexion, had Maroon as well as Scottish ancestry — something that had not been discussed in her family's conversations about their history. Stemming from this experience, she wanted to tell a story about young Maroon descendants whose appearance similarly belied their ancestry, and how they found strength and destiny in discovering and identifying with those roots.

This search for self and for self-development was embedded in GLG's world as well. Kenia and Lexi are both on an unclear quest. Just as in the game, Kenia's task was to clear enough of the fog away each day to move forward. Diving into entrepreneurship and the laboured process of product development was a way to tackle concerns about her identity.

KM: I am well educated, but was never taught *how* to think and create independently and without bounds, instead it was relative to something pre-existing or someone else's experience. I am having to learn this every day with every new unprecedented challenge I face. In a way, Lexi is the confident, assured and enterprising child I would like to be.

The game's cultural focus emphasised her own pride in her "Jamaicanness" and afrocentric identity, something that she was always sure to emphasise in dress and demeanour:

KM: Usually there's some giveaway in colour scheme¹² on a belt, shirt or bracelet. How I speak. I don't twang. My way of seeing the world: Yeah man, I can do it, or at least I'll certainly try. Maybe overextend myself for others in this way actually, and stretch myself beyond actual capacity...I think there's also my more relaxed way of seeing things, doing things. Less strict adherence (a more practical approach) to rules and regulations

Wearing her "Jamaicanness", proudly, "like a flag" in this manner was a way to strongly assert an island identity on her own terms. On the entrepreneurial circuit this identity provided clear opportunities but also set up limiting associations that she has struggled to overcome.

KM: It has served me well in the entrepreneurial journey when attending conferences, pitching and meeting new persons. There's a light in persons' eyes, sometimes a double take, but generally an interest in how what my country is known for could do a reggae version of what they already know. I think that attitude, when turned on, gets attention. It's all a performance really and our attitude plays well on stage.

KM: But how does it then translate during the Q&A [when it comes to questions like:] What's your business model? What's your global play going to

¹²She's referring to two iconic schemes present across the country. One is the black, green, and gold of the Jamaican flag. The other is the red, green and gold scheme seen across several African flags, notably in this case for the flags of Ghana and Ethiopia

be? Jamaica is tiny though, can you build a tech product to reach our market too and will it be relevant here? Can a Jamaican solution be globally relevant if people not dancing to it? That last one is not a real question that I have been asked but I do think it is what people are thinking.

This limitation applied at national and ethnic intersections. She had pursued an MBA at a program in Costa Rica that had only two other black people. There, she felt a pressure to be “real smart” given what she saw as the negative stereotypes attached to blacks there as poor and less educated. Her later entrepreneurial journey concentrated this pressure to be Jamaican, black, smart, and culturally authentic. At startup events she feels a pressure to “be smart in ways they are” — usually technically — while also remaining culturally authentic both in terms of her expression and her company. Her presence, as an out loud Jamaican promoting a Jamaican product at first produces warm surprises and “that’s cool” nods, but also produced loneliness, knowing that her exploration of black and Jamaican culture was not something that others readily identified with, particularly within the frame of technology development.

Being a woman provided yet another intersectional difficulty and identity, which she would rather not identify herself through primarily, refuses to be constrained by, but uses strategically. On selling her car, she refuses to describe it as “lady-driven” but she acknowledges that “checking off that box” as an entrepreneur is very helpful. While she doesn’t see herself as a disempowered, she recognises that support for black, female entrepreneurs exist and works to secure those opportunities without painting herself, to herself, as a ‘disadvantaged minority’.

In our talks, she describes being offered jobs by winkingly condescending men. Sitting in meetings, she watches similar men direct all their questions to her male business partner. She watches him defer all those questions back to her as they slowly ‘get the

point'. She has seen the old boys' club in action: giving jobs to friends and pats on friends' backs for unimpressive work.

KM: But time longer than rope. I've seen where the same persons come to me for services because they see the value in what we do. Or they blush when they find out that I was behind a [media] campaign. I honestly don't have any time for it. There's so much about *me* that I need to improve. I have enough turbulence on the inside.

6.4.1 Navigating the Fog

This demonstrates how self-making and product-making collapse, elastically, into each other. Working on the product is part of a larger project of self-becoming and identity formation and contestation. This incorporates aspects of Valley culture and technology — design methods, orientations to market — to allow her to challenge stereotypes of race and gender at home and abroad, and in a fantastic design world as well, to develop, iteratively, new ideas of self and society. And while the neoliberalism undergirding the startup re-imagines people “not as producers from a particular community, but as consumers in a planetary marketplace” (J. Comaroff and J. L. Comaroff, 2000, p. 304) her connections to her past personally and as developed in the game resists that extraction and imagines a participation in that global market that is rooted in community and the development of caring bonds and empathy. This gives the storywork of GLG an urgency and potency beyond software. That interactive cycle of product development involves, inseparably, a navigation of technical requirements and user experiences, and personal and national identities and hopes.

KM: I think for a Jamaican team of artists who believe people are beautiful, seeing it through an 'afrocentric' spectrum allows all the colours of black, brown, mixed to come through in a more inclusive way. It speaks more closely to the narrative of who we are as Jamaicans. Out of many, but mostly black...

KM: I'm drawn to the thinking that 'we are all a diaspora, we belong to the tribe we choose' kind of narrative and explore what this means in a fantasy world that mimics differences and similarities in figurative ways.

Our vision for change had placed us in the middle of debates over language and class, and "over the meanings of Africa and its place in Jamaica's past and present". Producing a game with a lead character that celebrated Jamaican identity and 'black girl magic' required us to navigate the island's colour code. For most of the team, black was singular while afrocentric had a broader poetry and also a possibility to develop an inclusive and scalable proposition for a market within the island and outside it. But as I have shown, deployed with undue care, this can minimise the psychic baggage that continues to be attached to "black" and risks rehearsing an afrocentricism that has been deployed to keep black Jamaicans in place and deny them a role as legible, valued citizens in a national project.

This is a contradiction that Kenia and the team are alive to. Afrocentric spoke to a balancing of what she refers to as the 'the black narrative' within the frame of the creole national project, while reframing it into a mission with growth potential. Where "Out of Many, One People" has secured an ongoing emphasis on creole standards and diminished blackness as visual and political project, her "Out of many, but mostly black" is an attempt at a calibrated acknowledgement and rebalancing of the country's call to

order that pulls blackness mostly out of the parenthesis to which the original motto had placed it.

6.5 Conclusion: New Directions

KM: I have always believed I pitched in those competitions before I was ready. But they keep saying they awarding the person, not the idea. And I've been told by pitching judges: *'you are a natural, better than lots guys we've seen, and I've been doing this for years. If you were based in (insert other place) you'd have been much further by now'*. So it's like the person was ready to tell a story, but it's still being baked. I have mixed feelings about pitching competitions, God bless them.

KM: If I hadn't won the awards which signaled 'Mi find it!', then it would have felt easier to say I'm a do a blog about 'searching, please wait'. I wonder if telling this development story now makes me less credible. Did what I pitch last year not go suh?

Andreessen (2007) writes that the appeal of the startup is not just the ability to make money but that one starts with a blank sheet of paper. The startup entrepreneur has the capability, if not the obligation, he argues, to imagine and bring a new product into existence. This new product can create what Flores et al. (1988) describes as new possibilities for practice and what Andreessen (2007) describes, through examples, as new ways to communicate, work together or the now hackneyed call to make the world a better place.

But where does a Product come from? In the parlance of the lean startup, one's Unique Selling Proposition — a thesis for market fit and then growth — emerges from identifying a problem in the market that you are uniquely positioned to solve (Ries, 2011). But, as the expression of a vision, does a product only serve to meet the market's existing needs, or can it also assemble one through its arrival?

Many of the Jamaican tech entrepreneurs I met over the years argued that the local market for technology products is small and weak, at least compared to the market associated with The Valley. Credit card penetration is lower, and far fewer potential customers were willing to pay enough for apps and services for the startup to be sustainable and grow; internet access, while vastly improved over the last decade, was not yet pervasive and often sporadic. In this view, the local market is less than ideal because it doesn't readily map on to an imagined one that would respond immediately to an entrepreneur's vision, particularly one developed through what other entrepreneurs in California and around the world are able to do.

We began building GoLexiGo to address literacy issues and to help black Jamaican kids develop a sense of their own value and belonging. As a new partner and someone rediscovering and manoeuvring my own complicated relationship with being black and Jamaican, I loved that GLG came out of a hopeful vision for self and nation.

Like any tech startup, we had to wrangle with the problems of building technologies and securing a market for our product. Our choice to focus on spelling and storytelling in a culturally specific setting landed us, not just in a difficult technical challenge, but also in the middle of a set of fractious personal and national relationships with Jamaican racial and class identity. We wanted to support ideas off community and to help kids make ancestral bonds now broken. However, we had to be careful about how these

cultural symbols had been wound into marginalising projects, particularly ones that were meant to limit or hold in place the kids that we most wanted to help.

As we spoke to potential funders and customers, and listened to our own protestations, we realised that explicitly placing GoLexiGo as a black story — not just a Jamaican one; or, more internationally, an Afrocentric one — would make an already difficult journey more complex. By wading into a small island market and larger world that was still working out a complicated relationship with blackness, we realised that we would not be able to promise, or rely on, an exponential path of growth and value. We had avoided a position on the island's colour divide and perhaps a unique selling proposition. While this was in part due to methodological allegiance and hope for scale, our external ambivalence was reflective of our own internal conflicts about race and class, which were then embedded in our prototypes and development strategy.

We are now making an evolving adventure game delivered through monthly kits that combine interactive stories, printed puzzles, and guided outdoor activities that all feature collaboration between kids and us. It is about a winding together of worlds, digital and offline, kids imagination and ours. In this way, even the challenge of growing and developing a startup — the open search — is woven into the product itself, allowing both kids and team to grow and explore together what this world might be. Here the game's designed world, as a fantastic that incorporated afroancientism (Henriques, 2008) and afrofuturism (Dery, 1994) offers a new projection of the space between folk or modern blackness that is now allowing designers and kids alike to participate in an active interrogation and unfolding exploration of what blackness could be.

This is a reflection of how we are coming to terms with our internal and external conflicts. Literacy is still important but spelling is no longer the centre: exploring and shaping an evolving world is. We would now focus on increasing parent-child interac-

tions and developing critical thinking, which teachers suggested was a powerful predictor of in-school performance. But more importantly, perhaps more so than literacy, this would be a product where kids can come, not to fulfil our vision but contest it and to produce new visions in a fantastic landscape.

This kind of “storywork” goes beyond constructing the software that in turns produces and animates a world. Embedded in this entrepreneurial journey is a hope for self, for kids, and a shared ethnic identity; a challenge to operationalise the nation’s cultural, creative, capital; and a mission to tell, and revalue, black stories. This is a story of personal and technical becoming, and a growing into knowledge of self, product, and mission.

CHAPTER 7

PIPELINE PROBLEMS

The pilot of the Caribbean Mobile Innovation Programme — announced earlier in the year at Digital Jam 3.0 — ran for fourteen weeks in the summer, out of classrooms at the UWI’s Mona School of Business. To facilitate the budding entrepreneurs who also held 9–5 jobs, classes were held on Saturday mornings and on Tuesday and Thursday nights. Attendees were expected to have a basic background in software development but the goal of the programme was to teach the skills needed to develop mobile apps and supporting business structures

I was the technical training coordinator. I replied to a job posting I found on Slashroots, the local developer mailing list. In a combination of good fortune and subconscious field preparation, I fit the bill for the position: a ransom note like selection of skills that conveyed the variegated landscape of global mobile technology production¹.

On Thursdays—tonight—we focus on Java, the default programming language for developing applications for the Android phones that dominate the local market. The students have voted for it. They want to master the tools needed to build apps that look and feel “native” to the platform.

The classroom is temperate. Just outside, air conditioners occasionally shudder under the heavy burden of chilling the tropical air. The class runs 6–9pm and Kingston has yet to cool off. Inside, we cut across time and space, simultaneously in what was once the New World, then the Third World, and is now on the verge of being the Tech-

¹“i) OOP; C#, C++, Objective C, Java, Photoshop and Illustrator, CorelDraw, 3DS MAX, ii) Linux Essentials, and iii) basics of web technologies USSD, SMS), and core mobile technologies and mobile web design i) HTML5, CSS3, JavaScript, and JQuery, ii) Android-BlackBerry-Windows-iPhone applications and iii) UI/UX design of mobile apps)” (infoDev, 2014b)

nological World. A sense of “almost”, like the cold, sanctifying air, displaces detractors as hot air.

We had started these sessions with high hopes. The students certainly would have to be hopeful. They are spending six late hours a week with me for what amounts to a test run. But after three weeks, teacher and students alike have begun to accept the size of the challenge.

Java is not an easy programming language to learn. The attendees have written code before but in easier to pick up languages like PHP and Python. These are languages with less boilerplate and simpler development environments. There is a lot of complicated material to master between printing “Hello World” and the techniques needed to build a functioning “native” app that approaches the complexity of the ideas they submitted in their applications.

Today’s lecture topic is a struggle: “Object Orientation in Java: Classes, and Object-Oriented Design”. The slides titles are equally thick: “Encapsulation, Is-A and Has-A, Inheritance, Composition, Polymorphism, Abstract Classes, Final with Inheritance, The Object Class”. The curriculum I’ve been provided is abstract with few concrete examples; we’ll only get to learning the specifics of Android’s Development Kit in the ninth week. Their impatience is palpable; at the same we struggle with the building blocks needed to get them there.

Java is but one hurdle. The absolute volume of material that needs to be learned is tremendous. On Tuesdays, we cover prototyping, user experience guidelines, and a range of ideation methods from a Design Thinking curriculum. Saturday’s business class, run by my training partner, is budgeted for 4 hours. There they must learn how

to develop business models, perform market & competitive research, pitch to funders, and manage employees.

Scenes like this are repeated in tech hubs and other programs across the globe (Friederici, 2017; Haines, 2015; The Economist, 2017). Many of the participants are drawn into these entrepreneurial pipeline by global media coverage of the industry and by the celebratory and revolutionary rhetoric used by the agencies who run them. And, like here, they struggle with the gaps between their expectations and the realities of the training workload.

The load only intensifies on graduation. Then comes the torturous path of putting this knowledge into action: securing “product-market fit”, attracting users, and securing funding. Many of the teams I have met successfully raise funds, win awards, and make a splash in the newspapers, only to disappear, without finding sustained interest from the market or traction; the ground fell away under them.

7.1 Diagnosing Pipeline Problems

Some of this is to be expected. Most startups fail, we are told. Andreessen (2007) and other industry analysts argue that most always will. The system produces hundreds of failures to find one unicorn — a high growth, high value product that can scale across the world.

The problems go beyond the high risk of entrepreneurial efforts. The call to leapfrog stagnant social structures through technological disruption attracts the widest pool of participants but it also undermines outcomes by encouraging participants and program administrators to underestimate the amount of work needed to create sustainable products. I believe that this stems from a technological determinism that underestimates not

just the volume of work but the qualities of attention and response needed to develop products that can achieve the storied Product-Market Fit. In the following sections, I provide an analysis of how this framing of technology development practices has arisen and offer a reframing of the technical skills required along with hallmarks through which we might evaluate new approaches.

7.1.1 Not state; not market; not disruptive

First, programs like CMIP are located in a contradictory position. Since the early 1980s, development agencies such as The Bank, USAID and the IMF have prioritised private sector development in Jamaica. Yet, in this case at least, they have effectively expanded bureaucratic state power by creating, with the government, a secondary system that entrepreneurs have oriented themselves to first rather than pursuing a direct engagement with the market.

This is understandable. The EPIC footprint in Jamaica is the most visible of all the efforts to support technology development through the vehicle of the startup. Their events and programs have provide participants with international legitimacy and winners of local and regional competitions are afforded travel across a world-spanning circuit, where they can meet other entrepreneurs and win progressively larger prizes. However, over the years, entrepreneurs can become stuck in this development agency simulacrum as they hustle through a system of funding efforts where institutions reward pitches and prototypes that adhere to their vision of the world. It is these rules that entrepreneurs learn to navigate.

And, despite the seeming endorsement of the startup's disruptive potential, that taste for disruptive practices is not applied internally. Slow-moving bureaucratic struc-

tures of sponsoring agencies and governments fail to mesh with the faster paced and experimental environment in which tech entrepreneurs must compete globally. Further, this space, jointly pursued with the government, rewards conservative ideas, or at best, those well aligned with their mutual interests.

7.1.2 A focus on metrics and scale

Further, these agencies have metrics and incentives focus on volume and flow — the number of programs launched, entrepreneurs that graduate, funds deployed — but allocate less energy towards the critical analysis of problems entrepreneurs face. This too is understandable. The program is young. Administrators must secure ongoing funding from their partners. However, difficulties are then glossed over. As I followed up with entrepreneurs years after their involvements with the program, I found a marked difference between how program materials present their work, and entrepreneur's reported outcomes and experiences.

This focus on metrics and scale inheres across the pipeline. The companies they support must also profess some claim to scalability. This might not be intentional but it is baked into the ideology of the design and production methods used to fill out a startup training curricula. These approaches rely on projections of growth and scale that will be difficult to achieve locally. Yet, as I will show, the program does not, and perhaps cannot, prepare participants for the challenges they will face globally.

This emphasis on scale applies to the structure of the training programs themselves. EPIC is built on a vision of scale within infoDev's larger globe spanning fabric that would distribute knowledge and know-how in a scalable vision — Jamaica was to be the hub, and the smaller islands the spokes. Tsing (2012) argues that this naturalisation

of scale has long shifted from business and into development projects at large, wherein becoming large and widespread has itself become a marker of progress. She argues that this encourages approaches that can be spread from site to site without changes to project elements. Similarly, here, training materials and infrastructures, as best practices, are intended to work across the global system, despite often low coherence between sites. These incentives and evaluative criteria result in curricula that are easy to transport but are difficult for students and trainers to put into local practice.

7.1.3 Rendering ‘Valley Technical’

Whether intentionally or not, the visions of success in these programs fail to account for the differences between the everyday realities on the island and the putatively Silicon Valley environments which inspire them. These expectations of market, infrastructure, and even entrepreneurial readiness travel poorly. This is part of a technocratic, technosolutionist vision, that in the case of building internet services and apps through lean approaches, misunderstands critical parts of how product-market fit is achieved and thus value produced. The pursuit of Valley approaches as best practices, ignores the questions: Best for whom? Best for what situations? This devalues the difficult and critical work of adapting methods to local constraints, which might require unpredictable engagements with each batch of entrepreneurs, and at different points in any startup’s trajectory.

The CMIP program materials emphasised a plan to “train the trainers”, a rapid process in which trainers could come up to speed with the curriculum and then teach it to students across sites. In this framing, trainers in the classroom, while they might hopefully possess local domain knowledge, would have only just become familiar, and not yet mastered, these “universal” methods — or the reverse. They would not be well

placed to find mediations between those methods and local needs in the classroom, or how to instruct entrepreneurs on how to go about that process once they graduated, or how to address questions that arose outside the anticipated curricula. Similarly, at pitching events, the experts that circulate as judges and panellists have little practical experience in the local markets for which they are called to give advice and judgement — as the ire raised by some audience members indicated. But these are the skills that entrepreneurs need to develop in order to thrive.

From my experience working with teams, this reflected a process in which a range of problems are rendered not just technical (Ferguson, 1994) but “valley technical”. By reframing a range of local social issues into The Valley’s techno-utopian frame, these programs underemphasise both the difficulties that will frame the experiences of the black tech entrepreneurs² as they develop products for home and abroad, and the structural issues that continue to determine Jamaica’s larger vulnerable position in the global economy. These structural issues have been exacerbated by the very institutions who run these programs, and are perhaps unaddressable through purely technical might.

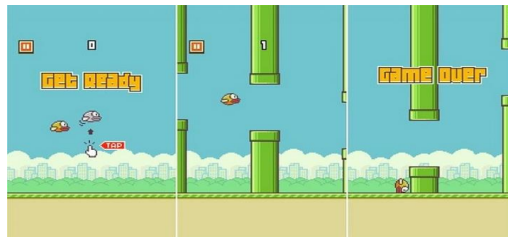
And this rendering is based on a meritocratic projection of The Valley that also overestimates the role of pure technological prowess in the success of the region and its companies. Administrators and participants alike struggle to apply traces of those practices that they view from afar, and are thus warped by spyglass. Their view of what The Island could be through technology development is diffracted by these imaginaries of what The Valley is.

In this vision of what Jamaica could and should be, its society, culture, and material infrastructure can too easily appear as sources of anxiety — obstacles to the methods

²It is perhaps unsurprising that there few children of the elites in these training programs — a distinction on the island that often hews along colour lines. Extended participation in these programs is a marker of the inability to access funding and networks elsewhere. Their difficulties in ascending though these programs — disruptive though they claim to be — are representative of their struggles outside them

The success of Flappy Bird is a source of inspiration for apps developers

- The game was developed Dong Nguyen, a 28-year-old who lived with his parents in Hanoi, Vietnam
- He discovered video games by playing [Super Mario Bros.](#) as a child, and began coding on his own at age 16
- At 19, while studying programming at a local university, he won an internship at Punch Entertainment, one of very few video game companies in Vietnam
- Created and developed the Flappy Bird game over a weekend
- The game went live on the iOS App Store on May 24, 2013
- It was offered free of charge
- 25,000 new apps going online every month
- By February 2014, it was topping the charts in more than 100 countries
- Downloaded more than 50 million times
- Nguyen was earning an estimated \$50,000 a day



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Figure 7.1: A slide explaining Flappy Bird as part of a Parliamentary debate presentation on the new potentials of mobile development. Excerpted from J. J. Robinson (2014)

and ideas proven in other markets. This is not unique to the Caribbean. In similar tech spaces across the globe, the viability of local forms is measured in terms of their infrastructural and ideological distance from The Valley's (Avle and Lindtner, 2016; Avle, Lindtner, and Williams, 2017; Irani, 2015).

7.2 The pipeline is a maze

This game has haunted me (fig. 7.1). Not just the game, but the vision of possibility that those who speak its name wish to invoke. In that tongue, Flappy Bird is an evocative example of a success possible from a globally marginal place. In mentions by ecosystem

supporters all year, the success of the game was presented without its details or complications. It was a message to youth about what hard work and following a proven formula — making a popular ad-supported smartphone games — could yield.

But there was a dark side. While many accounts of the game presented it as an overnight success, it was but one of a set of many other games that the developer had toiled on over the years. Most had met little success. Yet, as Flappy Bird became a global sensation, the developer, frustrated in part with harassment about the game's legendary difficulty, the relentless press coverage, and accusations of copyright infringement, pulled the game from the app store and disappeared from public life (Kushner, 2014). Many in The Valley had doubted that his success was organic and tried to debunk his rise as the result of foul play (Carter, 2014).

In truth, the game's random good fortune offers few lessons for Jamaican entrepreneurs trying to make their own mark in their world. The doubts about its honest success — whether correct or not — reflect the difficulties in moving through the pipeline. While it has become much easier, in this instance, to launch a mobile game, getting traction has become much more difficult. Customers might be spending more on mobile games overall but the “cost per install” — how much a developer has to spend on marketing in order to secure an audience — has tripled (Brustein, 2014).

The repeated invocation of Flappy Bird reflects a search for ready, portable routes to success. Across these programs, participants and administrators alike look to a range of design methods, programming languages, and platform choices for repeatable templates. Software development has never been immune from fad and fashion but there is also a search for determinism afoot.

Software's determinism and open terrain are in conflict. The world that software can address is widening, but building a product, not just code, today requires a considered approach, critical thinking, and shaving down. The pipeline is in truth a maze, not a linear path, and as one navigates it to turn an idea into a product, the openness of the software world can become a burden. There is, in software, no secret to success. As Seaver (2014) argues:

Making technology is kind of like being lost in the woods. There are many possible directions to go. If you don't do anything or keep changing course, you'll never get anywhere. And, although companies that make it out of the woods may claim to have the secret to success, one tends to suspect that they just picked a direction, got lucky, and justified their decisions after the fact.

Yet, for ecosystem supporters, a site like that cold CMIP classroom is one where technical knowledge can be transplanted to foster innovation and development. But this de-emphasises the qualities necessary for successful application, over-emphasising a knowledge *that* over a knowledge *how* (Ingold, 2001). Returning to that eclectic and somewhat incoherent list of skills that I was required to possess as a technical trainer, we have to ask, what exactly are the skills vital to the startup? What could I have taught instead?

7.3 Being Technical

I believe that this linear framing of human-centred technology development and deployment stems from a fantasy of technology as a route for a decontextualised set of

rules and routines for conquest. In this section I examine the roots of this view. I then provide a reframing of technique and technology that would be better suited to product development through the entrepreneurial pipeline across The Island and beyond it.

Ingold (2000) argues that the understanding of technology in Western society is fixed within a split between society on one hand and nature on the other. However, technology, nature, and society he argues, are not labels but a set of political and moral commitments and claims and, rather than seeking delimited phenomena that these terms identify, we should try to understand what is being claimed through their deployment. In particular, he argues that the dominant conception of technology is one that aims to maximise the distance between society and nature in order to establish the epistemological conditions for the former's control over the latter, through the supremacy of human reason.

From a technological determinist standpoint — or perhaps one that centres technology as force driving but not necessarily determining social development — any line charting the relative technological infrastructure between The Valley and The Island is also a claim about the complexity of their relative social organization. From this line of reasoning, Silicon Valley's advanced industrial technologies reflect its sophisticated society while the less advanced technological landscape in Jamaica is an indication of its correspondingly simpler social order. The evocative title of the The World Bank (2014a) article covering Digital Jam, the year's kick-off startup and pitching event, *"Silicon Valley casts its nets in the Caribbean"* alludes both to the world transforming power associated with the internet, and to this mesh of lines that that can conduct technology and capital, breakthroughs and opportunities, between zones³

³Not to mention the hopefully accidentally unfortunate sense of extracting resources.

Ingold rejects this conception of technology however, and argues that such line would be better seen as depicting a process of externalisation in which the “technical” is progressively cut out from within the matrix of social relations. He argues that technologists are acculturated to “believe that a body of context-free, propositional knowledge about tools, their interrelations and how to use them, lies fully-formed inside people’s heads, simply waiting to be revealed and written down” (Ingold, 2001, pp. 29). In this framing, the implementation of a task — the design and construction of a product — would then involve the mechanical application of that knowledge and those operational principles, regardless of context or previous experience. The productive work is moved into the technology, divorced from the human whose role becomes to effect mechanical principles that are indifferent to the agent and context. Technique, Ingold argues, would then lie in the tool or in its instruction manual.

But this misconstrues the very nature of skill. As Ingold demonstrates through several examples, skill is not in these context-free representations but instead lies in what he refers to as “developmentally embodied capacities of attention and response” (Ingold, 2001, pp. 30). Our attempts to codify this skill as a portable “technology”, he argues, have transformed the underlying practical activities, just as written language transformed speech.

7.3.1 Skill and the startup: technology and technique

I believe that this definition of skill, has significant consequences for how we think about startup practices and the ecosystem that is supposed to teach what is necessary for the flourishing of these businesses and the products they design. If we can separate, but briefly, technology from technique — what Ingold refers to as the *knowledge that*, and the *knowledge how* — it is clear that traditional Computer Science education has provided

much of the *knowledge that* of programming but less of the *knowledge how* of practically implementing that into a product. Working in the classroom with graduates of Computer Science programs, it was clear that the knowledge gained from a reading about object inheritance in Java or the structure of programs was not the same as learning how to put those features together into a working product, much less one that maps to needs in the market.

On one hand, the startup movement — like Making — has had such an impact because it promises a democratisation of technological production that challenges rote technical education built on this conception of *knowledge that*—designed to prepare students for interchangeable positions in a knowledge economy assembly line (Lindtner, S. Bardzell, and J. Bardzell, 2016). Working on a startup promises hands on engagement instead, pinned to the potential for exponential financial returns. It promises a democratisation of not just *knowledge that* but *knowledge how*. But in practice, through the pipeline problems I have described, this *knowledge how* has been turned back into a system of rules and representations and abstracted lessons about elements of product design and has become again a *knowledge that*.

As I have shown, while these design methods do call for context sensitive, localised practices, and the mediation of global ideas and local needs, incentives and competing demands in the system such as the desire for scale, and how to make oneself legible on a global stage lead to a search for “technology” as ready, portable templates for action. This route emphasises choosing solutions first and then searching for local problems to which they can be easily applied.

Mitcham (1978) argues that at the core of technology is a desire to “transform the heuristics of technique into algorithms of practice” (1978, pp. 251). Re-reading the EPIC pipeline in this way reveals a fantasy that the knowledge of a particular “tech stack”

or set of methods, abstracted into representations and rules and packaged and taught across zones, will lead to the development of a locally and globally viable and valuable products. But there can be, in a geometric sense, no direct translation of these approaches, if so packaged, along any line that leads from The Valley to The Island. They cannot arrive unchanged.

If we are to use Valley methods in The Island, they must be transformed, and they must be transformed through the careful attention and response of putting them into practice within the new context of each application. This transformation itself requires skill, yet this is not being developed due to a hope for “technology” as ready, portable templates for action. Instead, what is needed is an understanding of technology as embedded in the matrix of each culture, and of technique as inseparable from the experience of subjects as they shape things in these contexts (Ingold, 2000).

7.4 Unfolding Skill and Drawing in

Ingold emphasises that skill is the combination of “practical knowledge and knowledgeable practice” (2000, pp. 316). I believe this provides a much improved foundation for teaching startup and design skills within the pipeline, though it challenges the existing orientations towards scale. Across several articles and books, Ingold emphasises the rhythmic attentive conditions needed for the development and application of this skill, which I summarise here to provide orienting lines for the following chapter’s exploration of how such skill might be cultivated through local metaphors.

First, we should not conceptualise use as the coming together of two distinct, rigid bodies. He argues that our tools and our bodies are brought *into use* more than they are *used*. Functionality or skill is not a property of the person or the object (or in this case a

method or design tool) but lies in the “gestural synergy” of human, tool, and material — an entire, inseparable, field of relations.

This bringing into use requires familiar patterns of activity, which must be developed through attentive, perceptual involvement that necessarily entails “qualities of care, judgment, and dexterity” in which one continually responds to ever changing conditions. There can be no mechanistic application. As a result, Ingold argues that skills cannot be transmitted solely through formulae and plans. Novices, he argues, must develop a “feel of things” in order to perform this continual fine-tuning of movements, in order to achieve what he refers to as the “rhythmic fluency” needed for successful practice. What training should do, to paraphrase Ingold, is to educate attention and provide contexts and scaffolds for the development of this coordination of perception and action. It is this feel of things as one goes about this activity —the rhythm of its unfolding practice — that generates the final form, not the design that precedes it.

Ingold’s examples are drawn from cultures close to nature — Papua New Guinean bag-weavers and nest-building weaver birds — but he emphasises that this understanding of technique applies to engagements between people, and between people and things, drawing our focus to the material only as it foregrounds the relational. This is critical for the startups in the pipeline, for whom the key to successfully exiting the maze (or thriving in it), depends on bringing into use a range of tools and methods through the active and sensuous engagement — perception and action — in a context constituted by local infrastructures and audience, and their own emerging capabilities.

As I have argued, the appeal of pipelines like EPIC is that participants can find a *knowledge that* complemented with a *knowledge how*. But I have also argued that the structural conditions and incentives devalue the forms of skill needed for a startup’s success. That *how*, borrowed and abstracted from The Valley’s approaches, has become

yet another *that*. This mirrors Ingold's assertion that technology has forced a division between knowledge and practice rather than complementing technique with a foundation of knowledge.

We can transmit and teach technological knowledge that. Jamaican schools have done this, although we can argue that they have not done it well. In the classroom, many students who had taken computer science classes were shaky on fundamental concepts, making it difficult to get to the more complex structures needed to create their more sophisticated product ideas. This is perhaps another signal that knowledgeable practice, the second component, is much harder to develop. Without internalisation through repeated contextual use, *knowledge that* quickly decays.

And this is even more critical in the entrepreneurial spheres that expand beyond the lines of code in an IDE. This is vital to the success of technology development and the diverse challenges of the startup itself. The startup as team aims to be a producer of objects that are artfully constructed: well designed and carefully integrated into the fabric of our lives. To do so they must develop a feel both for that fabric, the forces that shape production and deployment, and in the case of the pipeline in particular, a methodological dexterity in order to engage in the rhythmically fluid relations through which product-market fit unfolds. I believe that this is something pipeline programs want to address. Taking them at their word, I want to suggest here how they and local developers might achieve their goals and develop this skill.

7.5 Conclusion

Based on these insights we now understand that creating a successful product requires the energies of its creation to be invested into achieving rhythmic resonance with the

field of relations in which it will be developed and brought into use rather than seeking dominance. In that world, defined through rhythm, the development of a new “disruptive” product would first require finding attunement with things as they are then shifting relations to a new beat by injecting syncopation. It is this active, dynamic nature that is missing from the classrooms, missing from the incubators, and missing from the hackathons, where so much of the beat of real world “complications” that will shape product and team, are left out.

This results in the cultivation of what Ingold refers to as clumsy practitioners: those who seek to mechanically implement instructions but remain insensitive to the unfolding, evolving conditions where the product, and its value, can emerge. This unfolding has a unique and “intrinsic intentionality” — or what Hodder (2012) refers to as a tautness — outside of designs or plans, that is constituted by the entire field of relations as one goes about work. This is a frequent realisation one hears echoed in pitches and at startup events: that it is through the “pivot” and unfolding work that one finds a good product, not in the original idea.

This requires approaches that draw technologists into the matrix of society rather than position them as in control, above it. These technologies must be put into practice by specific people in specific contexts, or we must find a way to make and enforce abstractions of those contexts and those people. But this is colonial conquest and requires a financial and technological might that participants in these environments do not possess, unlike the well-resourced Valley figures they choose to emulate. Rather than conquest they should aim for resonance. Limited funding and thus the inability to impress one’s demands unto the landscape requires this attention to fluid performance.

That colonial vision of technology, following Ingold, is not a marker of a sophisticated society, but a reflection of processes in which society is split away from nature

for purposes of control. He shows how hunter-gatherers strive to use their tools and techniques not to achieve emancipation over a world made client, but to draw nature into social relations in order to establish mutualism, not control. I believe that Jamaica's musical cultures provides the tools for achieving this mutuality and rhythmic fluidity and for fostering and transmitting technical skill and in the future I hope to explore how they can allow the island to develop a technical practice based on its unique soundtrack.

CHAPTER 8

MAKING THINGS TOGETHER

In the chapter *Pipeline Problems*, I examined efforts in Jamaica and across the Caribbean to create technology entrepreneurship pipelines from mind to market and criticised them as founded on unsustainable visions of technology and design. As I close out this dissertation, I want to return to HCI and our commitments. I believe that HCI has a unique role to play in assemblages across the globe like these entrepreneurial pipelines. Our interdisciplinary nature, and dual role as critics and constructors of technology, makes us well positioned to attend to both the “objectness of things” and the entanglements that result from how people and things depend on each other (Hodder, 2012). This is a return to the terrain of the chapter *Notes On Construction* and my exploration of the meshwork of paths that emerged from as I worked from a personal, “native”, platform. Here, I want to work through how we, as HCI researchers might weave into our practice all the worlds we care about and how these commitments can help us cultivate the kinds and qualities of caring work that can make for a design practice and scholarship that asks and allows more of ourselves and of others together.

When I left Oakland for Jamaica I was cynical about startups. I had recently moved from San Francisco, leaving rising rents, cost of living, and gentrification trailing behind me. I was weary of startup hype and the negative transformations that accompanied it. Yet, through a parallel project, I was cued to the transformational potential of technology engagements (Williams, 2015). I had first attempted to lose weight by tracking calories using a single app but I found new transformations and capabilities in the unfolding alliances with others that my use of these health and fitness tracking systems had pulled me into. This encouraged me to be less cynical about the startup’s potential for others.

It did not convince me that there was nothing to be concerned about, however. I recognise that in both personal health tracking systems and the “default” startup ideology are encoded troubling trends of individualism and social breakdown, an abdication of mindfulness in search of the instrumental and the deterministic, and a domination of profit motives that view people as users — in terms of Life Time Value (LTV) and Customer Acquisition Cost (CAC) — not participants. I knew, up close, how easy it was for users of health and fitness tools, and entrepreneurs working in startup ecosystems, to get wrapped into manipulative and structurally unfair systems and unsustainable ideologies. However, I saw how engagement with technology development through the startup evoked potent feelings for the people I worked alongside and provided an opportunity to realise long held dreams of personal and national independence. I found in these spaces powerful possibilities for participants to develop their capabilities and those of others.

We can easily decry these sites as filled with a cruel optimism and as a hopeless venture. The lack of successes so far makes this an easy conclusion. But I was reoriented by an articulation of “belief” (Despret, 2004), that reflected a chance for more. Despret (2004) frames beliefs not in terms of ‘what it is’ but in terms of ‘what it makes’: how it makes entities ‘available’ to events and unfolding relationships. She develops this through a tests in experimental psychology performed with students who are paired with groups of rats that they are told have been successfully breed to either navigate mazes well or to do poorly at the task (Rosenthal, 1966). In truth, all the rats were the same, but both groups of rats largely lived up to their cultivated expectations. Reconsidering the question of the participants’ beliefs within the context of that objective reality, she writes that:

“the rat proposes to the student, while the student proposes to the rat, a new manner of becoming together, which provides new identities: rats giving to students the chance of ‘being a good experimenter’, students giving to their rats a chance to add new meanings to ‘being-with-a-human’, a chance to disclose new forms of ‘being together’ (Despret, 2004, p. 122).

This belief made them both available to mutual transformations, producing good and bright rats, and careful and accomplished experimenters. By allowing themselves to be “affected and affecting” they made themselves available to each other’s becoming. These are complex authorisations and articulations that result from transmission of trust and faith, between experimenter and students, and students and rats.

I began self-tracking simply to become a new, smaller self. Over time, as I found success, I was drawn into an ongoing process of becoming more: a physical and epistemic transformation by believing in, and allowing myself to be affected by, an unruly assortment of allies — myself, data, devices, algorithms, fellow trackers, and more. It has been very powerful for me to think of the pitches, hackathons, and the sites of more routine daily product development described in the preceding chapters in the same manner. Supporters did believe that these young black people struggling on stage could become more; in my work with teams we believed this of each other. These meetings of people and technologies did realise possibilities for many mutual transformations even though they have yet to produce any billion dollar unicorn startups.

I knew what this sort of belief had done for me. This was also a place and a people I cared deeply about as a Jamaican. So I chose to take an active position in their becoming. I found my project re-articulated as a stewardship of that chance, for myself, for them, and for what we might become together. That now more activist position required me to rethink my research commitments.

8.1 HCI & Industry

I think this re-examination of commitments is vital for HCI today. My position in regard to my field site, and thus my discipline might seem contrary to an epistemological goal of producing objective and portable knowledge. It might seem subjective, biased, and unscientific.

However our role as designers and evaluators of human computer interaction has woven us into a wide range of global processes in which identity, capability, and progress are being reformulated. Our work is only beginning as we incorporate this diversity of feats, faiths, and futures. Where then are the boundaries of what we should attend to. Digital technologies are deeply embedded in our world and the boundaries of a computational domain cannot be stably defined

Similarly, while the big five companies — Facebook, Microsoft, Google, Amazon, Apple — do rein over the economy, it is increasingly difficult to point to anything that we can maintain as a distinct “tech industry”. What is clear, is that their product releases are synonymous with upgrades in capitalist power. Capitalism’s underlying precepts of scale and expansion are woven into our work as technologists. Not only do we need to think about the boundaries of our role and the implications of we do & study, we also need to analyse the degree to which these fundamental economic visions shape our expectations, and our research processes.

The Valley might be easy to identify as the acme of this concentrated coupling of neoliberal market capitalism and computing but that this was endemic to much of technology production anyway was clear, and intensified, as I worked in an island trying to join this digital economy from its margins. It was made more poignant because of the Caribbean’s history within capitalism. As I argued in the chapter *Mapping Things*

Out, the region was the test grounds for this coupling of men and machines, and for the redrafting of the world for scale. The trajectories of the Jamaican startups then run in palimpsest grooves. Much of the world has changed and there are new possibilities for action but many of the structures of power that fix the island into place remain. My work in Jamaica and California has directed my attention to technology development's potential to disrupt or enforce current arrangements of power and privilege. Currently, enforcement seems the most rehearsed.

We need to account for our place in the world, our role in this system, and our power to reshape it. If we are critics of technology, we must also aim our critique at more than objects. We need to shift our criticism from a "hermeneutics of suspicion to a hermeneutics of accountability", and attend to the role that HCI and other technology disciplines play within society (Brynjarsdóttir Holmer, Sengers, and Williams, 2018 (in press)). And, as builders, we need to think about where our plans come from. We cannot work in a structure in which our goals are set by anomalous technology directives — states, corporations, science, or markets — and our role in HCI is primarily to put these agenda into action. Our approaches to both critique and design must expand to encompass these arrangements of power in which digital technologies are but a part, or we fail to account for our own role.

Those arrangements have maintained unsustainable disparities in power and wealth. But these constantly reshaping entanglements and assemblages also contain opportunities for change — for our making of that storied better world. Movements like the startup ecosystems around the globe are deeply embedded in current capitalist inequalities but also represent potentials for transformations. My time in Jamaica presented me with opportunities of resistance to the disenchantments in the logic of capi-

tal and what Skeggs (2014) refers to as its promotion of hopelessness and impossibility. These were moments of connection, enchantment, and incredible affective energy.

On one hand, our job has to continue to be to reveal the problematic logics at work behind technology design goals but we must also have a vision of how to produce new patterns or our “analyses will trap us into that which we are expected to reveal” (Skeggs, 2014, p.16). She argues that we have a duty to discover better ways of being and doing. This storied better world is not one marked by the arrival of new technologies or a universal basic income as a panacea for inequity; it is one in which we care for and take part in each other’s becoming. We can highlight how chances are foreclosed but also how desires are breaking open new pathways — pressing ourselves to think in terms of limits and crossroads and how these new intersections can produce unexpected futures (Biehl and Locke, 2010).

To arrive there we need to attend to the moments and practices that can enable us to flourish. While it is clear that these new assemblages such as the tech startup in the Global South can intensify those inequitable structures and flows, they also offer an opportunity for critical intervention. The affective energy and potential of startup ecosystem, like the related Making movement, offers a change to engage with people who share HCI’s goals for democratising technology production, even though these spaces can easily fall into technosolutionism (Lindtner, S. Bardzell, and J. Bardzell, 2016). As I will explain, it is because they offer these complications that we must involve ourselves

8.2 Being Involved and Interested

Supporting that chance, or ‘glimmer’ (Lindtner, S. Bardzell, and J. Bardzell, 2016), requires us to cross boundaries between research and practice, and design and criticism.

As Lindtner, S. Bardzell, and J. Bardzell (2016) argue, HCI has a “methodological blind spot” — where we pursue either possibilities of technical innovations or the demands of careful sociopolitical critique but not both simultaneously. They call for the development and deployment of “reflexive-interventionist” positions, which in their case, they develop through an engagement with the Making movement in Taiwan and its tensions between technosolutionism and the utopian.

To not engage in Making’s potential, they argue, would be to abdicate our agency to contribute to what it could be. In this case, as with my experiences with startups, this will involve our insertion into corporate, capitalist forms and their agenda but they argue that supporting these forms of entrepreneurship is not antithetical to critical intervention against capitalism’s logic. Instead, it represents an opportunity to expand our critical scholarship to those who live outside the world of conference and research papers but are deeply involved in the effort to develop and democratise technologies across the world.

Supporting emergent assemblages like Making movements or startup ecosystems are critical to the production of a better world, not as an outcome for tomorrow but as a continuous process that is grounded in today. Biehl and Locke (2010) argue that we must attend to how these “configurations are constantly constructed, undone and re-done by the desires and becomings of actual people—caught up in the messiness, the desperation and aspiration, of life in idiosyncratic milieus” (2010, p. 337) but while we have produced technologies and design methods that are more sensitive to a widening range of contexts and cultures, Taylor (2017) argues that we are still labouring within a vision of design wherein the world is reducible into defined sequences of input, interaction and output, largely neglecting the practices and things through which we make

the world personally meaningful for us within and across these contexts, and how living brings all this together to provide meaning and relevance.

Taylor's argument is that we have failed to develop a sense of design in particular, but I argue of our work overall across criticism and design in general, as in dialogue, built up with our surroundings, inclusive of all kinds of entities, people and things, and how these dependencies unfold over time. Taylor is encouraging us to conceive of design, not as the production of augmentations that could allow human mastery over the world — but as a way of authorising and making us available to unfolding becomings with other entities within the world. As he writes, this vision of design embraces the processional and the lively relations between/along people and things.

Accordingly, this directs our design attention beyond just the immediate product, service, or indeed the question of user experience. Design, Taylor argues, might then be primarily concerned with supporting an unfolding dialogue that aimed to ask and answer “in what are you interested?”— giving others the chance to communicate their interests to us along with their ways of doing. This is a version of design in which through others, we can find the possibilities and conditions for ‘new existences’ (Despret, 2016). It is a version of design and criticism through which we take a step beyond explaining realities and towards imagining, and collaborating towards a progressive transformation in forms of economics, politics, and technology (Biehl and Locke, 2010)

Once we have developed an awareness of our “becoming with” and how it can authorise the capabilities of others, then we have a duty of care to maintain them in conversation (Bellacasa, 2011). As she argues, this caring is not merely a moral or normative concern for a “better” or more diverse world (Bellacasa, 2011). It is an improved scholarship through a deep engagement with things that extends matters of concern with more articulations, and going beyond moral norms or “obsessions with power”. It embeds

us more deeply in the technical, which as I have argued, is to be deeply embedded in the entanglement of people and things that is society.

Caring, in the way that Bellacasa (2011) suggests, like the anticipatory futures approach outlined by Lindtner, S. Bardzell, and J. Bardzell (2016) is speculative. It is a commitment to think about how things would be different, in this case, if they generated care. While this is attached to visions of what a better world could be, it avoids ready-made explanations of what care might mean in each case and place. As she argues, it requires careful critical standpoints.

In doing so, it shapes the way we produce knowledge and also remakes our relationships and experiences with things in affective terms. As part of a process of attunement, it can increase our “affective perception of the worlds and lives we study” (Bellacasa, 2011, p.89) and suggests that we make of what we find in the world — matters of facts and concerns and technical issues — what we need in order to foster caring relationships, thus remaking the world through how we study and represent it.

As Taylor underscores, this care represents an effort to “become interested” and to deeply immerse oneself in the problems of another so that we may grow and experience things together through that shared curiosity, inevitably *transforming* us both as entangled. This is vital for implementing Lindtner, S. Bardzell, and J. Bardzell (2016)’s anticipatory design approach which calls for a critique of the present and then a reconstructive approach that assembles speculatively imagined fragments (glimmers) of the utopian piece in order to imagine and explore alternative futures. These futures are not forecasts but invitations to imagine things differently, often along these lines of care.

As I argued in the chapter *Notes On Construction*, fostering these relationships to knowledge and field is part of a technoscience knowledge project that places us deeply

into the world. As Despret argues, casting aside affect and personal passion in search of objectivity “does not give us a more objective world, it just gives us a world” without us”, and therefore without “them” (Despret, 2004, p. 131). We must emphasise our place in this world and making our connections and our cares evident are critical to that. This means reexamining how we have encouraged researchers away from these affective matters (Bellacasa, 2011).

My reluctance to go to Jamaica and to talk about self-work came from this fear. After my return from the field I struggled with what I thought would be the ramifications of speaking from a very personal place in a deeply personal manner. As Bellacasa (2011) argues, how we write and account for the things in the world can sanitise and silence, leaving us without the speculative, or the political, or the personal, which can be easily shunned in our process of knowledge production. I worried that I would be providing the world at large with yet another reason for my work and that of my participants to be marginalised and ignored. But these concerns, she argues should become an explicit part of the representation of things, and affective engagements are critical values in matters of care that should trouble our conceptions of critical distance and research objectivity. By including our own cares and concerns explicitly we are encouraged — forced — to consider agency — our own and that of others — within the ongoing making of the world. Perhaps it is in the generation of that consideration the world is made better today not by the outcomes it might produce tomorrow.

This places attention placed on who new forms might harm or devalue, and what their concerns might be. In doing so, caring then highlights dependency over unsupportable externalisation. While it takes considerable energy to power that effort — to keep a company or product the same as it scales across the world (Tsing, 2012) — caring, by attempting to produce an accounting that includes the neglected and undervalued

is costly. But if it slows us down to care and be dependent — to be trapped in a taut elasticity with things as they are — then those constraints offer opportunities for real innovation in sustainable growth rather than the unmaintainable externalisation processes through which innovation is produced today.

Saying yes to scale and no to diversity is a rejection of care. The resistance to make real, meaningful change to the diversity of technology production and discourse, per Tsing, is not just about prejudice. I would argue that it is a rejection of the burdens of care and managing a variety of voices and concerns, which complicates current strategies for scaling and high growth. Because caring is not just a one time task. It is a commitment to an ongoing role. As Bellacasa (2011) argues, transforming entanglements of people and things from matters of concern to matters of care, entails obligations to be responsible for the ongoing becoming of that configuration and for the new associations between people and things that it directs us towards, including the broader arrangements of capital, people, and technologies that I argue HCI should attend to.

8.3 Conclusion

In my work with teams, following lean startup doxology, I would frequently encourage them to do less: to focus on defining the core of their products, to think critically about their audiences and what they both value. By producing a prototype that spoke to those concerns, then they could in conjunction with their audience, add complexity and features, growing the capabilities of their team, their product, and their audience together.

I argued that this doing less today is in the service of that potential doing and being more tomorrow. This mirrors the orthodox prescriptions for scalability and growth: a

simpler product, shorn of the complexities that can be debilitating in an environment of “potholes”, can grow with more confidence. This was both technical diagnosis and a prescription for care. Doing less is also about leaving more room for care. It gives you room to consider and care for the consequences of your designs, engagement with your customers, and the larger mission and values of your company.

Thinking and caring deeply about the world of things that your thing will participate in can be concordant with many of the financial and market imperatives of startup product development. Particular for technologists working from the margins, their awareness of the structural inequities of the industry, can be an opportunity to inject care rather than replicate business as usual and patterns that had excluded them.

Was this good advice for teams in their position? The Silicon Valley rhetoric of making a better world is often just that — rhetoric. We have ample evidence that many growth tactics, going against the guidelines of care I have explained above are not just feasible within the environments that they must compete but often part of accepted competitive business practices that are implicitly encouraged or explicitly cultivated by founders, funders, and ecosystem supporters.

So while these ecosystems contain a glimmer of the utopian, the easy routes forward make it all too easy to extinguish that potential. Many of my participants explicitly want to change the current arrangements of power not simply to work their way in to extant structures. I believe that we in HCI share those goals.

Their personal and professional goals have strung them up in a tension between openness and finality. Their design work, like ours, is as Suchman (2011) writes about design in the corporate form more generally, a “commitment to openness and flow on one hand, and an investment in objects with definite and fixed boundaries, separable

from their surroundings, on the other” (2011, p. 13). We should support them. By supporting them — becoming interested in what interests them and available to relational, epistemological, and even physical transformation — we can contribute to surfacing and authorising the conditions that can enable our mutual growth.

Things assemble. Hodder (2012) writes that they pull flows and relations into heterogeneous bundles that endure, even if only briefly. These might be “molecules and atoms”, “books and computers”, or “schools and societies”. Their “thingness”, he argues, resides in those connections and flows. The startup too is a thing, one that brings humans and non-humans together, albeit briefly, in the production of other things that in turn do the same. Both analyst and entrepreneurial actors need a sensitivity to this “object matter of things”. The shape and outcomes of all the relationships of things and products around us, from startup teams, their products, and the larger societies they exist within, depend on our capability to effectively account for our ongoing role in this “vibrancy of things”.

Through my experiences in Jamaica, I felt called to care as a result of diving deeply into the “objectness” of what we made and what it connected us to. While what we made mattered, it is how what we made made us available to each other that became a primary consideration for me. I felt called to account for my place in the world and my role as an HCI researcher in the ongoing making of the world. As a Jamaican, I am driven to intervene in how the freedom and sense of possibility in technology development has historically — and currently — depended on the unfreedom of people who look like me. I believe this is a conversation for HCI and that our support these hopes and chances for the ongoing production of new, more equitable arrangements can only produce an improved understanding of the interactions between people and things.

CHAPTER 9

CONCLUDING NOTES: AN ISLAND IS A WORLD

I have attempted to trace out the paths that Jamaican tech entrepreneurs must traverse as they attempt to take software and selves to global markets. They are unsure of what they will become. Engagement with the startup promises translation not just on a graph of technological capability and economic returns, but also along an uncharted and non-linear axis of self-transformation. I have tried to show the structures and flows that they must navigate, connecting a frisson of ideas and scales across sites of personal, national, and product development. Beyond a technical evaluation, I have interrogated how these forms summon new futures and reimagine particular pasts.

9.1 Chapter Recap

In *Notes on Construction*, I discussed the methods chosen for this study, premised on co-construction—*building with*—as an approach for understanding my informants experiences with technology development. Building on this foundation, In **Making Things Together** I called for entangled, processional vision of design and research. This rejects a de-passioned world and recognises and explicitly calls for HCI to builds on our subjectivity and affective bonds.

In *Proper Entrepreneurs?*, I looked at that the inward dimensions of a local debate on tech entrepreneurial practices that, while spurred by the desire to be visible to Silicon Valley, reflects deeper historical conflicts about national identity and citizenship. In reflecting on my work done with two teams, VideoLogs and GoLexiGo, two chapters that follow, I examined how two product teams are navigating these debates about

identity and ability and working their way through a global startup ecosystem through markedly different relationships between product and identity.

In particular, VideoLogs hopes for success is pinned on the simultaneous intermediating and disintermediating possibilities of offering data computation as a product. Here, data offers a direct connection to the truth but is also a way to support their claims to be capable technologists in a way that their race and geographical location has denied them. While this is a new opening that recent innovations in cloud computing and data science have provided, by placing their efforts against a largely failed national industrialisation and modernisation effort thirty years earlier, I show how these new potentials in technological breakthroughs can be but brief windows of opportunity, and are powered not by democratising energies but efforts to support the consolidation and flow of capital. In both accounts, the product development of these teams is rooted in their sense of self and aspirations for the future, found on the one hand, through the opening possibilities of a technological capability, and on the other, through roots, community, and tradition. In both cases, neither words nor data are a recourse from the challenges of producing technologies in a dialog between a team's vision for themselves and the world, the market's current desires, and the material and technical demands of writing software.

What is clear in these opening accounts is that the disciplining forces at the intersection of identity and technology have not disappeared. On the heels of the lottery scam in Jamaica, the BPO industry has increased security and surveillance of its workers. At Digital Jam, a banner startup tech event of the year, half of the program was dedicated to new opportunities in crowd work and the gig economy. This was positioned as the reverse of an industrialism: work from home, at your convenience rather than this office. But similar forces are at play. There will be surveillance and disciplinary forces,

though this system distributed and made ambiguous through rating systems. The rules that hampered unionisation and workers rights in the enclave are now distributed in the platform's algorithms.

The promotion of startups offers the hope of more agency from these systems but the reality of similar disciplinary structures. These entrepreneurs, like Kenia, Pablo and Clive, who work to stake out their own possibilities outside these firms, encounter other forms of discipline: how to present oneself as amenable to the interests of capital; how to be a proper entrepreneur. They may not work in these climate and explicitly controlled environments where watchful supervisors monitor key-in rates but they are participants in a system that pushes submission and produces new identities, often lifted from their Caribbean roots. On the data floors of the BPO, a worker outside the proper pink-collared attire could not be counted on to produce quick, accurate data (Freeman, 2000). The entrepreneurial uniform of The Valley (fig. 4.1) might be relaxed t-shirt and jeans but it is still a uniform — a key element of “culture fit” and instrument of judgement as central to their livelihoods as the pink collars of the BPO worker.

To pursue a startup in Jamaica is to do so in awareness of one's marginal place and value in the world, and that today's work, while done through new materials, confronts old challenges. For the budding entrepreneurially-minded developer on the island, there is a double consciousness (Bruce, 1992) understanding of how racial and national identity can be both a burden and an asset, a realisation that deeply informs, and complicates the work of the GoLexiGo team. Building a startup around a digital product can be a way to obviate that identity or to amplify it, filtered through what one thinks the market will respond to. The revelation of that identity is done cautiously and strategically within the toil to establish value to supporters, potential investors, and customers. Blackness or an Afrocentric identity might be a powerful call to action, one

that resonates across an African diaspora similarly at work on technology products, but this development is still gated by brokers, wary of the implications and complications of identity on expectations of scale.

In the chapter that followed, *Pipeline Problems* now informed by the experiences and debates I have set out, I returned to this dialogical challenge of arriving at Product Market Fit and producing selves and software in coordination. I build on these challenges disclosed from my work with entrepreneurs in Jamaica to examine the efforts to develop entrepreneurial pipelines. I pin the problems on curricula that focuses on the delivery of technical *knowledge that* over experiential *knowledge how* developed along with the growth of one's self. While the appeal of the entrepreneurial tech ecosystem is an emphasis on practical skills and knowhow, I argue that the disciplining effort of potential financial returns encourages an adherence to "known good" methods used by previously successful companies, also again pinned on hopes for scale. However these methods must be deeply transformed in the trip from The Valley to The Island, not meticulously adhered to as is.

In the penultimate chapter *Making Things Together*, I turned back to our work in HCI and our commitments as a research community and ask what role we wish to take in landscapes like Jamaica and the methods best suited to following, and participating in, the unfolding developments of technology in these sites. I argued that attending to these spaces should be part of a project of critical reflection on HCI's values and connections to technology and capitalism. I argued that we should continue to develop commitments that can help us cultivate the kinds and qualities of caring work that can make for a design practice and scholarship that asks and allows more of ourselves and of others together.

9.2 An Island is a World

An Island is a World was written by Trinidadian author Samuel Selvon, whose books deal with the West Indian experience both at home and during emigration to metropolises like London. They take the reader along a search for identity, self-awareness, a holistic integrity that has been missing in a society still crippled by the scars of slavery, indentured servitude, and colonialism. They describe an existential search that is essentially West Indian but also quite universal.

Similarly, the struggles in Jamaica that I have tried to communicate anticipate concerns that are relevant in the “centre”. Islands like Jamaica are often considered marginal places: physically, certainly but also often intellectually and culturally as well. I hope this accounting demonstrates the instability and fluidity of many of the categories used to separate margin from the centre.

Jamaica has been interwoven into global capitalism since its discovery, and its resulting heterogeneity and ability to incorporate disparate and often incoherent forms destabilises notions of the indigenous or the authentic. The countries in the Caribbean are places of riotous and productive hybridity, enriched by the staggering variety of people and traditions that flow through them. There is more afoot than a tropicalisation of things designed in more temperate climes.

But that is not to say that the stories I have tried to tell in anyway transcend race or an attempt at universalism. To insist that a story about (perhaps) marginal groups can be or should be about everyone risks denying and under examining their specificity. I have sought to empathise and to cautiously present similar patterns for consideration but not for generalisation.

In particular, I have undertaken this project because black experiences with technology are under-examined in HCI and STS. Where they are, the voices of authority are often not black themselves. Perhaps, as a result, existing discussion of black concerns can tend towards an exoticism, or a *mise en scène* in which the indigenous and authentic meets the new and modern. But this often ignores the richness in common place engagements and hybrid interactions. In this, the Caribbean, with its long-held New World patterns of creolisation, presents fruitful terrain for challenging our perspectives.

9.2.1 Scale and diversity

A major theme of this work has been how expectations and hopes for value rest on a naturalisation of scale. I have argued that much of today's modernity and basis in scale was birthed in sites like Jamaica. The long echo of that founding project informs today's technologies and methods of startup teams, the structures that support them, and arguably HCI as a discipline.

I am left concerned about how this traffic in fantasies of scale and speed shapes the possibilities of those who dream to participate in an economy that has now placed them at its margins. On the island, this exponential vision of technology development and innovation is as attractive to the nation as it is to the hopeful entrepreneur. This propels a brisk trade in desires that can enable, but can also hold in place.

Gatherings in the entrepreneurial tech development pipeline cultivate and transmit an infectious energy for a world that will be made better through technology, reflecting the deeply affective power fostered in the creation of digital technologies and the open possibilities that they signal (Hsu, 2015). We must be cautious however about how the pleasures and agencies of technology development done today for tomorrow shift

to the background, beyond our spheres of care, the forms of labour that these future technologies must rely on. Close attendance reveals key elisions, as the concerns, conditions, and forms of care that are needed to produce a sustainable world are bracketed away (Irani, 2015). Timelines and scenarios are compressed. Critical dependencies of people and things that sustain the world within and beyond software today are pruned, producing a vision of the world as if it could exist without them.

Development in this default mode can too often reinforce technology as a race towards scale and an escape from dependencies. Catering to that fantasy is particularly worrying in a site like Jamaica, which upon discovery, was re-designed to be free of the messy chains of dependencies that held scale back. Freedom for one group — demonstrated by the flight from thinking and caring about the world along those chains — produced the ongoing unfreedom that the country and its citizens suffer today.

We cannot hope for a world without dependencies and to expand outwards forever. The vision of The Valley, as rendered in Jamaica, is one in which technology design is not embedded within an entangled matrix of people and things but lies instead above it, providing the means for us to free ourselves from current and future dependencies. But, in our attempt to disentangle ourselves from the world and from bonds of care and dependency, we only dig ourselves into further dependencies, not out of them at all (Hodder, 2012). And we too easily externalise that damage, without care, onto others.

Visiting tech event after event during my time in Jamaica and since my return, I cannot avoid this scale as shibboleth. When we say, “software is eating the world”, what we are saying is that scalability and scalable projects are eating the world. This is the vision to which our notion of technology is tightly linked. This expansion of software and entrepreneurial tech development powers the continuing reshaping of the world into commoditised elements ripe for scale and exchange (Tsing, 2012).

Compelled by the disciplining fantasies of future returns, rather than adapt technologies to places, we reimagine places and people to fit technologies. Both at the metropole and the margin, these approaches, also given imprimaturs by institutional weight and circulating experts, turn us away from the non-linear, the dependency-entangled, the careful. They do not scale.

But as I have demonstrated, diversity is scale's enemy. Scale is turned against my participants, limiting their value. Tsing (2012) argues that while we have naturalised this expansion and growth as if it were a biological process, this vision of scale requires clever design and force to contest the unfolding processes through which expansion would have otherwise transformed, and instead aims for an extension without transformation. This requires elements and methods designed for alienation and abstraction — fit for scaling, traveling, and conquest — conceptualising diversity in its embedded complexities as the enemy of this progress.

Maintaining diversity depends on our ability to cultivate a caring consideration of how to abide with others (people, species, things). Those thrust to the margins of technology development — often the abject children of scale — now seeking their way in on their own terms offer impediments to this driving vision of progress. The technological world that Jamaican tech entrepreneurs wish to join is an imaginary and increasing actuality that no longer needs them, and perhaps has never wanted them. The world they want to participate in is built on a fantasy of their subjugation in the service of scale and capital.

This dominant technological practice is a dream for some but a nightmare for others. It is achievable only by limiting how far along a chain of entangled dependencies we allow ourselves to look. If the world is becoming kinder, it is perhaps because we are more aware today than ever before of the chains of people and things that connect us.

If the world is becoming a harder, unfriendlier place, it is perhaps because many of us are more able than ever before to remove these connections from our sight.

9.2.2 New geographies of time and space

If we accept the claim that software is eating the world — a claim which I have now hopefully productively complicated— then, again, the world is also eating software. This expansionist philosophy need not work primarily at the edges, but turned inward, can produce deeper interweaving of connections between us, authorising us to become more together (Despret, 2004; Taylor, 2017). This a long echo of the ideas behind today's personal computing systems — to expand our abilities but in service of solving species-wide problems (Engelbart, 1995). At a time when our planet careens towards an unsustainable state, this is the model of progress and technology that I care about.

Rather than attempting to draw a line that unproblematically both connects and separates valley ideas and island actions — California as metropole and Jamaica as the colony — I have tried to show a space continually being reshaped and riven through by a multitude of lines of fantasy and hope: continually becoming something new. I have tried to show how Jamaican tech entrepreneurs are part of multiple circuits and multiple forms happening between so-called “peripheral” places, and are inhabitants of their own (countercultural) modernities and geographies that splice through The Valley's.

By The Valley, I do not mean any possible comprehensive accounting of the history of the companies or cultures of the San Francisco Bay Area. Even within the San Francisco Bay Area, The Valley represents different things, and is even imagined to be in different places. The Valley is less a place than it is a claim to a “there” that is already

at, or is leading the way to, some singular future that the rest of the world is behind (Suchman, 2011).

As she argues, this notion of innovation, and of design more generally, imagines the world as always behind and always in need of skilled intervention. Despite an increasing democratisation of technology production, The Valley is still imagined as that focal point for the ongoing production of those innovative technologies for disrupting and then re-making the world. From the point of view of The Island and many people I met, it is a metonym for business, technical, and cultural forms that embrace openness and risk, push back against or disrupt the mainstream, and place technology production as the key measure of human progress, if not progress itself.

In this sense it is all too easy to view Digital Jam, the pitching event I described in this document's introduction, as a derivative space and as yet another step in what Turner (2016) refers to as "the conquest of everyday life by the information industries of Silicon Valley" (2016, p. 266). Participants are taught techniques and then produce what can easily seem to be direct copies of popular Silicon Valley products, now transplanted into tropical locations. Sitting in Digital Jam just a few months after my arrival, I at first ranked most of the pitches and prototypes as pale copies of what I had seen back in California. This was a foolish elitism. I spent months in Jamaica looking for inventive products and teams that I could work with and whose work I could "take back" with me to demonstrate that places like Jamaica were worthy of HCI's or The Valley's attention.

In *The Black Atlantic* (1993), Paul Gilroy describes a shared cultural and political space, staked out by the transatlantic slave trade and the resulting African diaspora across the UK, the US, and the Caribbean. He argues that, across an imaginatively reconfigured geography, black people have expressed a distinctively counter-modern project in which music in particular has developed as an ulterior but still public space for the

development of discourses of freedom from and resistance to the oppressions visited on people of African descent. There, through the use of sounds and bodies, black people have challenged what Noble (2016) describes as “the hegemony of the scribal, the visual and reason as the basis of modern self-understanding and knowledge” (2016, p. 278).

Within this Black Atlantic space, Jamaica’s dancehall and dub “sound system” sub-culture has developed a unique set of aesthetics across modes of production and consumption. Across a body of work, Henriques (2010b,a, 2008, 2003) explores how this cultural apparatus emerges from the particular material vibrations of its sounding. In particular, he shows how the island’s musical culture has been built on a combination of bass and base forged during a moment in the 1960s and 1970s where it was also given a verbal rendering as “black power”(Henriques, 2008).

Built, in this sense encompasses the material, the political, and the affective. Reggae producers build a tune — make music. A wide range of participants — crowd, dancers, DJs, vendors — collaborate at a musical event to “build a vibes”. Through these energies, participants build up a resistance and alternatives. We can also think of these musical, affective energies in terms of their potential to build and support technical practices.

What I realised, perhaps belatedly, was that what can easily seem like uninspired repetition was an opportunity to understand how affective energies can be transmitted and built “up up up” to inspire and power design. Perhaps what we need is more copies not fewer. Because what is a copy and what does an attitude against copying orient us towards? A distaste for copying places a premium on discontinuous and disruptive change and discounts incrementalism and the considerations that accompany it, reflecting a dangerous desire for costless transformation (Suchman, 2011).

Dub, the foundational form of dancehall music that provided the powerful soundtrack for the Digital Jam event, means to copy — to double. Jamaica's reggae industry is built on "riddims", in which a dozen or more artists may produce songs on the same beat or rhythm (Manuel and Marshall, 2006). A listener would be foolish — and many outsiders to dancehall culture display this insensitivity, just as my initial view of Digital Jam reflected a missing sensitivity — to consider this pattern as unoriginal or copying. The release of a riddim features songs all on the same beat, but it is through this repetition that artists produce, and listeners develop, a sensitivity to inflections of emphasis that over time gives birth to difference (Henriques, 2010b, p.77). Similarly, Davis (1996) emphasises how the polyrhythms of West African drumming that have informed reggae's musical aesthetics emphasise "simultaneous difference", in which "blocks of sound can overlap and interpenetrate without necessarily collapsing into a harmonic unity or consonance". When we listen or move to polyrhythm, we are participating in an emergent phenomenon as fluid lines arise and interact among individual beats and patterns.

To trace all this we need new geographies that show the far more complex circuits and assemblages that The Valley and The Island are within — a point Suchman underscores. The tech startup has been an evocative endlessly mutable vehicle with which to explore this landscape. Its dominant form, the one Jamaicans hope to capitalise on, is held together in a tautness by the valley's influence, and capitalist dreams. But it is also something more. Digital Jam's ongoing reflected an affective space beyond even that ambitious scope of the organisers. The technologies, dreams and affective energies that associated with add more dimensions than we can easily see: making what it is, and what it makes, different depending on where we stand as actors or analysts. This document is only the beginning of my exploration of those contours.

9.2.3 Tracing those new geographies implicates us

These dimensions create new opportunities and old challenges. The startup's uptake, as I have shown is a way to express a shared longing for a past never experienced, and a future long hoped for. The people I have worked with are amazingly hopeful for this future. I have attempted to both provide a critical account of their work and an exploration of how we might arrive at alternative futures that include them.

The Jamaicans I have worked with dream of participating in a new world, but without the power and privileges of those who wield technologies for scale, adopting approaches built on that basis offers them few templates and immediate applications. Limited resources constrain their ability to prosecute their impressions of scale onto an increasingly competitive landscape. I have argued that rather than forcing their way through, their route through a world claimed by scale might be best found through Jamaican subculture's adaptive mechanics that promise a creolised path that plays a polyrhythm attuned to the global and the local, and the affirmative and the critical.

That route will not be an outright resistance against capitalism — although that is what I went in search of. It will not always be radical, progressive and universalist. My engagements with startups have emphasised for me that, for now, these opportunities to change the world into a better place will be deeply implicated within its current troubles. Software eats the world and we subsist on its contradictions.

Attending to these crossroads and limits implicates us as well. Understanding what I have tried to explain in this document should encourage us to be better allies to their efforts. As an act of caring however, it should also help us approach our own work with more care and encourage us to locate our fate in a shared struggle.

To give truth to the call for a better world requires coordination and careful construction married with compassionate critique. In HCI, we need a broader perspective on practice and practitioners that jumps out of the formally understood spaces of design and can address the work of individual entrepreneurs, venture funders, development agencies, state governments, who, with or without an explicit neoliberal agenda, aligning and maintaining trouble and unsustainable approaches to innovation and value (Avle, Lindtner, and Williams, 2017). These are our inputs and our levers for change — part of the entanglement of people and things in which HCI resides.

This hopefulness for a better world is certainly a kind of naïveté but we should not exchange it for a worldweary cynicism that does not struggle for anything at all (Hall, 1992). As a black man in the United States, I know that racial equality and justice will not be achieved in my lifespan. Nor do I think that we will finally produce the kinds of technology projects that can solve the significant problems we will face as a species and thus develop a sustainable relationship with the world. I have only now begun to realise how much these two projects overlap and perhaps arise from the same place.

9.2.4 To be and act in the world

By taking on this research project on software and selves, I had stumbled, with little conscious planning, into a critical technical practice (Agre, 1997) coupled with a critical ethnographic one: a discursive dialogue within an emerging set of relations where we negotiate the conditions of research, and reciprocally, and knowingly affect one another (Suchman, 2011). As Suchman notes through Lave, this is a challenge to become “an apprentice of one’s own changing practice” (2011, p. 2) and to develop an ethical, political, and epistemological stance that illuminates our own entanglements in the knowledge that we make (Suchman, 2011, p. 14).

To do so has required me to place, and continually acknowledge, myself in the world. While this may seem obvious, it continues to be difficult. To be and act in the world, not above it, requires a continuing focus on the qualities or care I have tried to described here. I developed this through my affective bonds to home — discipline, island, and people. I think it has improved my scholarship.

On the island I was faced with forms of belief that proposed opportunities through which things and people could be more together. People, remarkably, allowed me into their lives and by making ourselves available — keeping ourselves open to what *could* be and what *was* unfolding — we were pulled into a communion I have only begun to describe.

Many of my participants are not lifelong engineers. I am not an entrepreneur. But we do share a desire for what (Taylor, 2017) describes as a “growing-in-making” in which “what we are and what we become is actively threaded into the practices of making”. Making transforms us and things together; we are designed by what we design (Willis, 2007). This is part of an ongoing, and never ending work of life as a movement of opening and being (Ingold, 2011). As I argued in this document’s opening chapters, this is a perhaps naïve and idealised notion of the startup, the entrepreneur, the engineer, even the ethnographer, but they all point to the chance for a shared exploratory vision of design, where what it is made emerges through what Taylor refers to as a “rhythm of relations”.

By time served, I am an engineer. This is not a discipline acknowledged for its people skills. I spent most of my professional life talking to machines and making things for people I never saw. As I pursued studies in HCI and ethnography, I began wearing that engineer badge reluctantly, shifting my self-definition to supporting and understanding others who make things, not making them myself. But I think, in my retreat

from technology production to technology study, I over corrected from my previous position buried in the cables and racks of data centres, and the loops and lines of software. Today, the two disciplines feel quite similar to me: equally alive to the world and profitably undertaken jointly, while not ambidextrously, with the same chance to navigate and shape that rhythm. At these intersecting scales, geographies, and lines of movement are lives lived in alliances of peoples and things that are marked by productive contradictions, and by the frequent negotiating and renegotiating of perspectives and boundaries as we twist around each other and expand the limits of our selves. The world as is consists of long chains of, among other things, artificial intelligences and human arms and as technologists we must locate ourselves — arms and minds indissolubly — in this tangled mess.

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